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Dental Policies in a Public Health Program*

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AS I see the implications in the title, this paper should cover the following points: (1) the question as to whether dental care is of real concern in a public health program and why; (2) what type or types of dental programs are to be advocated for inclusion in a public health program, including a consideration of the proportionate attention which the teeth should have in the program; (3) the technic which should be followed in the dental program or programs.

First, we are to consider whether the care of the teeth is a proper part of a public health program. It is rather generally agreed that disease of the teeth and adjoining structures is detrimental to the general health. Statements to this effect are made and accepted practically without question,[1] yet I venture to say that the views of the average health officer on this point are rather vague. As a matter of fact, perusal of dental and medical literature reveals the fact that, while much attention is being given to individual cases where such relationship is suspected, no worthwhile statistical studies are on record tending to show the effect of dental disease on the health of a community. I believe that one of the early studies needed in this field is a survey along the lines just indicated.

Another point in this connection to be noted is that by far the largest number of cases of focal infection reported deal with adults or

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those beyond school age. We seem not to have applied the lessons so learned to the school child, especially from the preventive aspect. Sufficient cases are on record, however, to indicate that acute rheumatic fever, heart trouble, chorea, kidney disease, and other ailments, frequently occur in childhood and have a definite focal infection as background. Care of the teeth is quite as important in the effort to prevent or treat these diseases as is attention to the tonsils.

The cutting down in efficiency of mastication when teeth are diseased is a point to be considered. Its influence is so obvious that it need only be mentioned.

Another aspect of dental disease which requires consideration is the effect of such disease both directly and indirectly on earning power. Indirectly, the loss of teeth results in disfigurement which may frequently have an unfavorable influence on the ability to secure employment. The psychological effect on the individual may also have an adverse effect on earning power. More directly, dental disease through its influence on health may result in enforced idleness, the economic loss here being accentuated by the cost of medical treatment.[2] This aspect of dental disease should be made the object of careful statistical study, which would of course involve the consideration of the dental as well as health condition, and would, therefore, call for assistance from both the dental and medical professions. I have no hesitation in stating, however, even without the backing of such a study, that dental disease is a serious menace to the health of the entire population from childhood on, and will, therefore, continue the discussion as though this statement were universally accepted. The conclusion may then logically be drawn that teeth occupy a major place in a public health program.

Dental policies in a public health program naturally center on the child. There has been too much of an assumption in the past, based on convenience, that this question could be confined in its application to the *school* child. The trend of all recent researches in this field of dental care indicates that to begin with the school child is to start very nearly too late.[3] Inconvenient though it may be, we must accept at the outset the dogma that an efficient dental program must have as its starting point an age well below that at which the child enters school. Let us not assume, however, as has been done by more than one student of this problem, that good dental care in the early years of life will eliminate the need for dental care later on. Even good teeth have been known to suffer from disease under unfavorable influences to which they may readily be exposed during the years when the child is in school. We may as well recognize at the outset that there is no

panacea for dental ills; no immunizing vaccine which once administered will afford lasting protection. In other words, if a dental program is adopted and put into effect, it should be one which there is reasonable expectation of maintaining over a considerable period of time. It might be embarrassing to be in the position of the man who caught hold of the tail of the bear and found that he could not let go.

When we come to recommend a dental policy to administrators of public health programs, we find ourselves confronted with the need for making a selection from one of several quite dissimilar programs which have been advocated by various members of the dental profession. This is a cause of some embarrassment to our profession, since it indicates rather clearly to those outside of it that the ideal program has not yet been discovered. It means that we must decide on such theories as all dentists can agree on, and present these with the entire weight of united dental opinion behind them. As it happens, those things on which all the members of our profession can agree are also the most economical procedures to employ in a broad public health program.

We find it possible to classify these procedures under

I. Education
II. Examination of individual mouths and limited dental treatment for a young age group
III. The continuance of the second plan into the higher age groups with a more extensive treatment program

It will be understood that the educational program specified under I would also be included in II and III. Because of the fact that dental treatment for children has certain aspects which set it off from the rest of dental practice, so that it is even considered a specialty by some, there arises also the question as to whether (a) the community dental program for the child should be universally applied, or (b) be confined to indigents. If (b) is accepted it is then to be decided whether the educational part of the program should be spread over the non-indigent as well as the indigent group.

It may be the simplest avenue of approach to consider the points just raised in the inverse order of presentation. We will accordingly discuss the educational phase of the dental program in so far as this is given in and through the schools. It is obvious that it will cover all economic levels as far as they are represented in the school population. It requires no further effort or greater expense to reach the non-indigent group with the educational efforts that are put forth. If the

educational program is to be carried to the preschool child and the expectant mother, as it is only logical that it should, it would seem wise to make a distinction between the indigent and the non-indigent groups. However, experience has indicated that the prosperous members of the community do not acquire dental knowledge along with their greater income; nor is their interest in the teeth of their children and desire to have dental defects cared for proportionately greater than among the indigent. If dental disease is a community problem, as I believe it to be, the dental educational program should have universal coverage.

With regard to points (a) and (b), my previous remarks indicate that the requirements of indigent children will be so heavy as to eliminate the question of providing community dental service for the non-indigent, except as a purely academic question. Dental care for the indigent is both an individual and a community problem. Whether it can justify itself on purely economic grounds as a means of avoiding general illness and diasability and the economic losses entailed thereby, can be determined only by a fair and thorough trial. Such a trial would be of tremendous value even though the answer to the question proposed might be in the negative.

Coming now to programs I, II, and III, I may well summarize I by quoting from the Iowa Plan for Dental Health Education.

> The objective of dental health education is to bring about a universal observance of the fundamental principles of preventive dentistry, to the end that we might have healthier, happier and more efficient men and women.

The Iowa "Plan No. I without mouth inspection" is the one which is advocated by its proponents, and is thus described:

> The experience of the Bureau (of Dental Hygiene, University of Iowa) in the State of Iowa has indicated that there is but a slight relationship between a school dental inspection and a successful dental program. . . .
>
> The success of any health program is directly dependent upon the ability of the teachers and nurses, especially the former, to interest the children.
>
> The plan therefore urges the child to visit the family dentist for the mouth inspection, which method is undoubtedly more educational in its effect than a hurried examination made in the school room by a dentist.
>
> The immediate objectives to be sought after (are)
>
> 1. To get all children to eat foods that build good teeth
> 2. To get all mouths in each (school) room free from decayed, abscessed and stained teeth
> 3. To get all children to have their own toothbrushes and to brush their teeth at least once each day

This is a program which is designed to give information and arouse interest, and should result in the greatest number of those financially able seeking dental services for their children. It is to be remembered that under this even examination of the teeth is excluded by preference, on the assumption that this as well as dental treatment is the function of the dentist in private practice or clinic. This should be regarded as the minimum dental plan. Its benefits are undoubted and its results in time will unquestionably justify the money required for its administration.

Plan II is based on the supposition that educational efforts alone will not prevent a very large amount of dental disease, which will therefore become a community charge just as is disease of more serious proportions. To treat dental disease, when it has occurred, naturally necessitates its detection. Therefore the minimum program of dental treatment consists of careful examination of the teeth at intervals of 6 months, with charting of any caries or gingival disease which may be discovered. This should be supplemented by what is commonly called cleaning the teeth or, as the dentist usually phrases it, prophylactic treatment, included with which there is to be a definite educational message and careful instruction in the use of the toothbrush.

The prophylactic treatment usually given by the dental hygienist has been attacked in recent years as being less than its name implies. In other words, it is stated that the cleaning of the teeth by the dentist or dental hygienist does not prevent decay. If we stop the prophylactic treatment with simple cleansing of the teeth, we may agree that this claim is largely true; but the prophylactic treatment is, in the first place, an object lesson in the care of the mouth, and if it is accompanied by an educational talk designed to stimulate the interest of the patient in keeping his teeth clean by daily brushing, as it should, it then becomes a potent weapon of defense against disease. It is for this reason that I specify that the prophylactic treatment must include adequate demonstration of toothbrush technic. Another justification of the cleansing of the teeth by the dental hygienist is that the educational message can be most effectively delivered while the patient is in the chair. If for no other reason, this might well justify the time spent in this operation.

Plan II, as just outlined, is one which requires no complicated equipment. The salaries of dental hygienists are less than those of dentists of corresponding experience and ability. While suitable rooms and facilities must be provided, a considerable part of the equipment may be of a portable type thus cutting down the investment and

making it possible to cover a considerable territory with a limited number of operators.

Plan II by its nature is relatively most effective with the younger age groups. As children get older, those who cannot afford dental care develop caries to a certain extent in spite of the educational and prophylactic efforts, and the time of the dental hygienist is therefore less productive of positive benefit. This program should, therefore, be limited to children below 6 years of age, with special effort to reach the preschool child.

Plan III includes the features of plans I and II, and adds the filling of cavities, extraction of such teeth as require it, and treatment of inflamed gums. The protective operations known as prophylactic odontotomy, if done at all, would fall under III. There still remains considerable misunderstanding about this particular protective measure, and it should be undertaken only by those who fully comprehend its application. Plan III should cover the older age groups as far as is financially possible. This requires the services of dentists and a more expensive and less mobile equipment. In this connection, however, it should be noted that in some communities much success has been attained through the use of a travelling dental clinic set up in a large bus. The principal expense, of course, is for dentists' salaries, supervision and supplies, and it is also to be borne in mind that the community which undertakes to treat teeth for its indigent children has assumed a responsibility which it cannot lightly put aside after a short period.

I call attention to the fact that sponsors of dental treatment programs have often taken the stand that they would limit the children so treated to a narrow age range, one corresponding roughly to the kindergarten and the first grade. There has been a possibly unconscious assumption that, if cavities occurring at the age of 6 or 7 were filled, Divine Providence would take care of any that formed subsequently if the child could not afford to pay for dental service. The lack of logic in such a program should be obvious.

To extend the age for dental treatment is not so expensive as it might at first seem, inasmuch as mouths under constant supervision do not as a rule develop large cavities. To start a program of fillings at a sufficiently early age, especially in conjunction with educational and prophylactic effort, is to cut the cost of such treatment per child to a very reasonable figure. Such a program cannot be made to reach as many children as the more limited age program, but at least the work which is done is not lost in a short time, and remains a permanent asset. I do not presume to set the upper age limit for this program, but believe that in fairness to the child it should coincide approximately with the age at which wages may be earned.

It would be unfair to close this paper without some comment on the subject of diet, of which so much is heard today. I do not decry the attention which vitamins are receiving, but believe that the angle of approach should be that of the general health, rather than a specific effort to influence tooth structure. I look upon dental disease not as a local condition, but as indicative of a shortcoming somewhere in the body. In other words, if we have perfect health, we should have perfect teeth. On the other hand, I think of diet, as something that the physician should prescribe, something distinctly in his domain. I would like furthermore to record by belief that the problem of dental disease will not be solved by the dietary route alone, but that this is simply one agency, quite as important an agency being mouth hygiene, i.e., the care of the mouth by the patient, the dental hygienist and the dentist.

Spain

THE new Constitution of Spain, unlike that of the Spanish Monarchy, contains clauses on child welfare. For instance, it specifies that the family is to be under the special protection of the State. Parents are required to feed their children, to care for them, and to give them an education. The State is to watch over the enforcement of this law and to provide financial aid to needy parents. Parents have the same duties to their children of illegitimate birth as to those born in wedlock. The State also assumes the duty of protecting mothers and children and accepts the principles of the Children's Charter of Geneva.

The Constitution makes primary instruction free and compulsory. The State is ordered to enact legislation for the purpose of enabling all citizens of small means to obtain any education they desire.

Other Child Welfare Measures by the New Government—A recent decree provides for the organization of a Division of Child Hygiene in the Bureau of Public Health. The division will also do prenatal work and work for the prevention of maternal mortality.

Another decree orders the establishment of school lunch rooms throughout Spain to be managed by the local school authorities under the supervision of the State. The funds will be supplied jointly by the State and the municipalities; private donations will also be accepted. The decree points out the importance of establishing as many such lunch rooms as possible and of reaching the greatest possible number of children.

The municipal Government of Valencia has decided to reserve a certain park in that city exclusively as a playground for children on certain hours a day in order to remove them from the streets of the city and the accompanying danger. The children will be under the supervision of public school teachers.—*Pro Infantia*, Madrid, 1931, No. 185.

Practicability of Epidemiological Methods in the Control of Syphilis*

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THE problem of the control and eradication of syphilis seems to me to be one of the easiest ones we have in public health, providing we approach the problem with the attitude of mind and with methods similar to those used in the control of other communicable diseases.

I do not want to be misunderstood as to the value of education in any phase of public health work—I am a great believer in it—but so far as syphilis is concerned, I think that our publicity and education have far outrun and overrun our attempts at the practice of hard-boiled epidemiological methods of control of the disease. As an example, to be perfectly frank, I cannot see the value of special talks to school children on gonorrhea and syphilis and what is to be accomplished. I believe in proper sex education but it seems to me that this can well be done by the teachers and parents themselves.

The control of syphilis, as I see it, is predicated upon three very definite and distinct factors; as it were, it rests upon a tripod supported by three legs:

1. Reasonably early and accurate diagnosis
2. Early and proper treatment
3. Sole leather epidemiology

Early diagnosis which is accurate is the keystone of the control of any communicable disease. You must know what you are to control before you know how to control it, and you must get started with that control before the thing is spread all over creation.

There is an increasing tendency, I fear, among public health folk to minimize the value of good clinical medicine. I feel that perhaps some of the newer men going into public health are missing this altogether. Just recently I caught the beginning of a small sized smallpox epidemic by recognizing an atypical case of smallpox. This diag-

* Read at a Joint Session of the Health Officers and Epidemiological Sections of the American Public Health Association at the Sixtieth Annual Meeting at Montreal, Canada, September 17, 1931.

nosis was confirmed by the distinguished chairman of the section on epidemiology.* This early recognition of an atypical case permitted us to get 3,000 people vaccinated almost before some of the typical cases which were contacts began to come down.

Regarding the second standard of the tripod, the question of adequate treatment seems to me quite well taken care of. So far as my experience is concerned I have never seen any lack of facilities for the treatment of syphilis. Adequate treatment is certainly available in New York State.

The question of sole leather epidemiology is the one about which I wish to speak. Apparently from statistics we are really not gaining much headway in the eradication of syphilis. It occurs to me that our failure to control this disease is quite definitely due to the fact that the cases are not properly investigated along practical epidemiological lines.

May I preface some narratives which I wish to give you by stating what may be my feeling concerning epidemiologists and epidemiology?

An epidemiologist is that creature who curiously combines a reasonable scepticism and insatiable curiosity with a passion for the truth and has the ability to recognize the truth when it looks him in the face, and with all this has the initiative to apply sufficient sole leather to the job to get the facts.

The object of epidemiology is to know enough about the behavior of a given disease and a given disease situation to control it. While it may be fun to exercise the mind playing with speculative and hypothetical epidemiology, this pleasurable exercise must be subservient for the most part to the practical. I take it that the taxpayers want us to get as much joy as possible out of our work but that probably that wish is secondary in their minds to putting down outbreaks of communicable disease and particularly in controlling these outbreaks so that their own communities are free from these diseases.

Having viewed for some time the passing scene in public health I have come to a fairly well settled feeling that epidemiologists are made by God and that the man-made type are worth in the market just what they will bring as good clerks.

The true epidemiologist or medical detective, when he has the scent, is perhaps the most stubborn being that you can imagine. He ariseth in the chill of morning and he toileth away into the night.

If we are going to control syphilis we must go to work instead of talking about it. Going to work on syphilis means the same as it does with typhoid fever—epidemiology. Each case must be worked up.

* Dr. Edward S. Godfrey, Director Division Communicable Diseases, New York State Department of Health.

If every case of syphilis were investigated and proper attention paid to the contacts as is done in other diseases, it would not be very long before medical students would have difficulty in obtaining clinical material enough for instruction in this disease.

The trouble with the whole business is that we have not made a real attempt to eradicate the disease. We have played around a good deal with it but sometimes one is forced to wonder just how seriously we have made war. We have probably talked more about syphilis without action than about any other disease in the reportable list.

In doing the epidemiology of this disease, one must be bold, determined, and unafraid. What constitutes good epidemiology in syphilis? I certainly would not be bold enough nor have the temerity to suggest that the following narrative reports may be such but I offer them as something which may point the way to the direction in which we should go.

Apparently syphilis is susceptible to very accurate tracing. The epidemiology for the most part is no more difficult and involved than smallpox. I presume that the difficulty has been with us in that we have, when investigating the disease, failed to speak out boldly with our questions and to proceed with our investigations with the same diligence that we would in typhoid. The reason for this, I believe, is obvious—we are too delicate.

Let me relate some investigations:

EPISODE 1

The first intimation which the New York State Department of Health had of anything being wrong in this community was when a Sunday school teacher came to the Director of the Division of Social Hygiene and stated that the wife of a certain official in her community was " dosing my boys with a bad disease." This information was passed on to me, the feeling, I think, being that it was based upon some sexual complex of the complainant.

One day when going through this town I stopped and talked to the Sunday school teacher and became convinced of the honesty of her suspicions and also of their validity. As a result of this interview I made an investigation which uncovered more than even the complainant had suspected. The Wassermanns for the community were checked up. There were a large number, 17 positives, all under fictitious names, but almost all of them taken by one particular doctor.

This doctor was called upon and with some of the information which I had in hand I convinced him that I knew quite a bit about the situation. He then became a fountain of information concerning the cases.

The first lead was to the station agent of the community. The story of this rather prosaic man was interesting and a little pathetic. He had been infected with syphilis by the wife of the official. The station agent was one of two men then " keeping company " with a school teacher; this teacher became infected from

the station agent and then married the other man. The teacher passed this acquired syphilis on to her innocent husband, who, when I saw him, had not the slightest idea that he had syphilis although he had a mouthful of mucous patches at the time. The teacher became pregnant and miscarried a syphilitic fetus. She was outside of the hometown in another community teaching when her secondary lesions developed. The diagnosis was German measles and she was kept under isolation until the first physician in her hometown, who had all the other cases, made the correct diagnosis.

The information which I received from the doctor concerning the names of the persons affected and who had the positive Wassermanns disclosed upon investigation that their infection was unquestionably the same source, that of the wife of the public official.

It was found that this woman was unquestionably about as promiscuous as it was humanly possible to be. My own opinion is that she was probably a nymphomaniac.

There were many sidelights of interest from the viewpoint of human psychology, such as the unquestionable, but perhaps difficult to prove, fact that this woman took her 15 year old daughter as a companion on some of her escapades; also the attempt of the husband to compel his wife to cease her immoral actions even to the point of horse-whipping her.

The woman and her husband, the latter now suffering complete necrosis of his nasal bones, had failed to continue treatment. This I ascertained by investigation with a physician in a nearby city who I suspected might be their attending physician.

It became my duty to go to this official, tell him the whole story which I had found out, and which he denied like a gentleman, meanwhile asking me to talk with his wife. I declined to do this but did state to the husband that he and his wife must get under treatment and stay under treatment and that she must cease passing syphilis about the community and if I found a fresh case of syphilis coming from her I would forthwith proceed to make complaint before the county judge and would have her locked up.

The result was that we got all of the contacts under treatment; the man and his wife went back to their attending physician; and now after quite a lapse of time I have heard no more of syphilis in this community.

EPISODE 2

In this community several positive Wassermanns were being reported. These occurred among persons who were working for a certain concern. In investigating any disease there are two sources of great information: one is the postmaster, and the other is the station agent. The latter was interviewed in this connection and I asked him where the boys were getting into trouble. He knew the answer, and told me the name of the woman, under pledge of great confidence. I sought this person out and found her with syphilis. A Wassermann was taken which was four-plus. Eleven cases were traced to this person. It was apparent to the health officer and myself that she would be very difficult to handle, and so without any further gestures we appeared against her in court, where evidence was submitted of her activities and infection, and the judge upon the evidence presented committed her to Pavilion G of the Albany Hospital until such time as she would no longer be a danger to the public health. Some time has elapsed since the circumstances de-

tailed here and no more syphilis has been traced to the woman in question or known in the community.

EPISODE 3

Two young girls came to the doctor in a vacation area and consulted him about their " cold sores " which could not be cured. The doctor was a very knowing and canny one and became suspicious promptly that the " cold sores " were the primary chancres of syphilis. Both girls were virgins. Here is the story:

Inquiry showed that these girls had both been kissed by the chauffeur of a family summering in the community.

Our investigation of the chauffeur showed him with a mouthful of mucous patches. He at first stated he would not say where he acquired his infection. One does not need to be too gentle in these investigations. Inquiry finally placed the source of the infection as a certain woman in town, who was then investigated. She was very indignant and vehemently inclined to resent the intrusion into her private affairs. Her denials and protestations of innocence were so intense and great that I thought she needed more investigation. She was found to have a positive Wassermann and was then given the choice of telling me or telling the judge the men who might probably be infected from her. She finally became convinced that her best interest lay in telling the truth. Two other men were found infected with syphilis. All of the persons, except herself, were cared for by private doctors; she was sent to a clinic in a nearby city, where she was treated. No further cases were ever traced to her.

EPISODE 4

Just as collateral information might I tell the following? Some years ago a mother inquired why her two girls, 7 and 9 respectively, had to " go to the toilet so often." I responded that they might have some infection and she inquired what, to which I replied, " gonorrhea." The mother abused me profoundly and at length. However, a little later she produced the two children at my office. Both had a positive gonorrheal smear and were virgins. I advised the woman, who was the wife of a farmer who employed three hired men on his farm, to have her husband examine these men. The husband proved to be a weak-kneed fellow and would not follow this request, so the mother herself made the examinations and found one man with a discharge which proved to be gonorrhea.

This fellow was a recent emigrant from Ireland where he said the story was believed that " if a man with the disease could touch parts with a virgin, the disease would disappear into the air." The judge who heard the case gave him 40 years.

EPISODE 5

The following investigation was made by Dr. John A. Conway, a confrere and brother District State Health Officer in the New York State Department of Health. Thirteen cases of anal chancre were reported in college boys. It was only after several weeks of questioning that the source of infection was found. After a good deal of hammering one boy eventually admitted relations with a young colored chef employed at the dormitory of one of the colleges. This chef, by the time the information was obtained, had departed for parts unknown.

The matter was then reported to the District Attorney, who secured an indictment, the chef being found and apprehended cooking at a boys summer camp. He

was arrested and sentenced to Elmira Reformatory for an indefinite period and later transferred to Matteawan Prison where he is still confined. This colored boy, 23 years old, was always neat and well dressed. He was popular with the boys at the university, and he was the only colored person in the village.

In but one instance did he give any money and that was to a farmer boy who delivered vegetables to the college, the amount being $.25 each time. It might be noted that this boy was the only one of those infected who might be classed as subnormal mentally, the others being normal college students.

Just as a sidelight to this report might be presented the fact that a minister was present at the trial who was interested in the colored boy and could not be convinced of his dangerous criminal tendencies and that his condition was mentally abnormal. This well meaning cleric declared that if they would liberate the boy in his custody he would be responsible for his good behavior.

Persistent questioning—almost third degree, if you will—finally after 2 months of effort produced the truth.

EPISODE 6

A married man consulted me for a discharge which showed gonococci. He insisted that it could not be a specific infection, but of course I had the actual proof and it could not be disputed. He then told me this story. He and his wife had for a long time been promiscuous, but due to the fact that the children were growing up they decided that it was a poor family policy and so had pledged themselves to the abandonment of extra-marital relations. But he claimed his wife had not kept faith.

A few nights after that the wife consulted me. She had a positive smear; she was told that she had a specific infection; and then she stated to me the same story exactly that the husband had given me, with the remark, " The men are all alike—you cannot believe them on their oath."

Both parties seemed to me to be so utterly honest in their denunciation of the other and there was something in their stories which appealed to me as being the truth that I persisted with my inquiries. On one occasion, while questioning the woman, I said to her, " When were you last pregnant? " This made her obviously a little uneasy. I could see that she flinched and did not care to answer. The questions further persisted in this direction discovered the fact that about 3 weeks before that she had been supposedly a couple of months pregnant and had gone to an abortionist whose name she gave and I believe as a result was infected with gonorrhea. I knew the methods of operation and technic used by the man who did the job. He used a probe which passed from one client to another without sterilization.

EPISODE 7

The fact of venereal disease being carried from place to place and starting up little local outbreaks is in my opinion the means of keeping up the rate. The following relation of facts unquestionably has been duplicated many, many times.

An Uncle Tom's Cabin company came to a community about which I know and played a one night's stand. The result of this was 1 case of syphilis and 3 cases of chancroid. These were personal patients of mine. The case of syphilis was in a married man and the disease was passed on to his wife without her knowledge. She never consulted me but I have understood that she was under treatment

for syphilis without her knowledge of what she had. This man acquired his disease from the person who portrayed little Eva.

In addition, to my personal knowledge, there were 4 other cases of chancroids and all of these men had acquired their disease from a colored woman in the show.

These 4 cases occurred in my practice when I was one of six practitioners in the community. It is fair to assume that there were many other cases as a result of Uncle Tom's one night stand in the community. If the cases had been promptly reported and epidemiology done on each no one knows how much suffering and how much disease would have been prevented.

The outstanding element which contributed to the solution of the problems here narrated is determination, with a dash of boldness. Public health is in spots becoming so diplomatic and so tactful that one becomes a little suspicious. Perhaps we must forget some of our polish and get a little push into the business.

Rural syphilis, I believe, for the most part is a series of local outbreaks, such as I have described.

There is just one conclusion: Every case of syphilis should have a hard-boiled, determined, and bold epidemiological investigation.

The Lady of Godey's: Sara Josepha Hale

THE life of Sara J. Hale, who has been dubbed "The Lady of Godey's," is the subject of a book recently published by Lippincott, and reviewed at length in the *New York Times Book Review* for November 22, 1931. The magazine carrying the name of Godey was known to everyone who read at all, but this biography has reminded us of matters which had certainly escaped the memory of almost everyone. It shows that Sara Hale was a pioneer in many matters for which the professors of hygiene and public health workers now take credit, and which are usually considered very modern. Articles on physical culture and child hygiene, as well as those on housekeeping, home making, architecture, gardening, cookery, etc., appeared 60 to 75 years ago, due to the farsightedness of "The Lady of Godey's." About 1850 the magazine had attained an unprecedented circulation of 150,000 copies, and there can be as little doubt of its influence in regard to health matters as there is in regard to the general subjects which it covered, including, as it did, an amazing number of reforms and innovations, such as the adoption of Thanksgiving as a national holiday, women as teachers in the public schools, women medical missionaries, Seaman's Aid Society, day nurseries, and public playgrounds.

While we give all honor to this pioneer, let us thank the author, Ruth E. Finley, for her painstaking study, which has brought to light the health facts which had apparently been forgotten by the few living who knew them, and are new to the present generation.

Syphilis from the Epidemiologist's Point of View*

THOMAS PARRAN, JR., M. D., F. A. P. H. A.

New York State Commissioner of Health, Albany, N. Y.

THAT much is unknown about the epidemiology of syphilis is apparent even to the casual student of the disease; yet syphilis seems to excite the interest of few epidemiologists here or abroad. The extension of knowledge in the epidemiology of the disease and the better application of existing knowledge are the next steps most needed in control.

Although the origin of syphilis is clouded in obscurity, there is no disease around the history of which there has been raised such a storm of controversy. Because syphilis spread throughout Europe in the last years of the 15th century and the first years of the 16th, many students have concluded that it was imported by the sailors of Columbus on their return from their voyage of discovery. The disease, however, was described before 1492 in Europe and in the ancient writings of the Chinese and Japanese reference is made to a disease which undoubtedly was syphilis. The weight of evidence discredits the American origin of syphilis, although it is certain that about the end of the 15th century this disease spread rapidly over the whole of Europe. In many instances it took on the character of an ordinary communicable disease. The reason for this widespread prevalence has been discussed at length by Hirsch,[1] who summarizes the evidence which leads him to conclude that syphilis existed prior to the return of Columbus's sailors from their voyage of discovery. Sudhoff[2] and Garrison[2] also have reached the same conclusion after exhaustive investigations.

THE CAUSATIVE ORGANISM

To say that the causative agent of syphilis is unknown appears to be rank heresy, so generally is the *Treponema pallidum* accepted as the inciting agent, although Koch's postulates have never been fulfilled as regards this disease.

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* Read at a Joint Session of the Health Officers and Epidemiology Sections of the American Public Health Association at the Sixtieth Annual Meeting at Montreal, Canada, September 17, 1931.

Cultivation—The *T. pallidum*, in my opinion, has never been grown on an artificial medium outside of the human body, in spite of thousands of attempts by the most competent bacteriologists in the world.[3] A few reports of success in the cultivation of organisms, which on sub-culture prove invariably to be non-virulent, probably represent accidental contaminating saprophytic spirochetes. The evidence is far from conclusive that the *T. pallidum* is the sole etiologic agent. Questions which remain unanswered concerning the cause of syphilis are:

1. Is the *T. pallidum* alone the causative agent? if so, is the visible spiral form but one stage in the life cycle? or
2. Is there an "x-factor," the presence of which is necessary as a symbiont with *T. pallidum?* or
3. Is the true causative agent unknown, and the *T. pallidum* a saprophytic concomitant of the true cause?

Certain it is that during the period of incubation of the infection in rabbits one may search diligently through innumerable microscopic fields and fail to find a single organism; yet the inoculum will produce the disease.

Life Cycle—A number of investigators have reported a life cycle, during which the organism passes through an ultra-microscopic stage, and during recent years Levaditi[4] has revived this idea and has described various developmental forms. Warthin[5] also leaned toward this view.

Physical Characteristics—The organism is fragile; it does not resist drying; there is no reservoir of infection so far as is known outside of the human body. It is very susceptible to heat, to soap and to chemicals.

Strains—Much discussion has arisen as to whether or not there are special strains of the *T. pallidum*. In the case of other organisms differences in strains are demonstrable, and *a priori* it seems logical to assume that they exist in this organism.[6] Evidence which is suggestive but not conclusive has been accumulated indicating that there are special neurotrophic and dermotrophic strains and that the higher rate of involvement of the nervous system among some peoples is a result of infection with a neurotrophic strain.

RELATION OF YAWS AND SYPHILIS

It is uncertain whether or not the disease called "yaws," prevalent in the tropics, is a modified form of syphilis. The weight of experimental results points to a difference in the two diseases, while Butler[6]

has presented suggestive epidemiological evidence of their identity. It is still unsettled whether or not an infection with "yaws" prevents the development of syphilitic infection. The only direct experiments in humans are those of Jahnel and Lange,[7] who failed by inoculation to infect two general paretics with a yaws virus although one normal subject took the disease.

RESISTANCE TO INFECTION

Natural Resistance—There appears to be no natural resistance to an initial infection with syphilis, although Coutts,[8] after citing the virulence of syphilis when introduced into a virgin soil, has suggested the possibility of widespread sub-clinical infection with an attenuated virus, which partially immunizes a large proportion of the population and results in a comparatively mild form of the disease. Also if Warthin's[9] findings which showed the *T. pallidum* in tissues of from 35 to 50 per cent of the autopsies at the University of Michigan Hospital are accepted, our present conceptions of syphilis must be changed. On this basis, infection with the *T. pallidum* must be considered a widespread condition in which only the occasional case comes above the horizon of clinical and serological recognition.

The unbroken skin presents a barrier to the passage of the *T. pallidum* but the mucous membrane apparently does not. Susceptibility to infection appears to be universal except in persons already infected. Once the disease has established itself in the body, its course may vary greatly. Constitutional factors as yet unknown seem to determine the severity of the infection and the susceptibility of the central nervous and cardiovascular systems to involvement. Differences in type of the disease are shown by some races. The dark skinned races are more resistant to involvement of the nervous system, while the negro is more susceptible to cardiovascular disease of syphilitic origin.[10] Sex is an important factor in the course of the disease as well as in its prevalence.[10, 11] Pregnancy seems to exert a specific beneficial effect in promoting latency.

Acquired Immunity—Second attacks in themselves are no different from initial attacks. It is well known that second infections with syphilis are of rare occurrence, and as criterions by which infection is judged become more severe, the number of proven cases is reduced almost to the vanishing point.[12]

Following Neisser's[13] work it was thought that this resistance to a second infection was due to persistence of the first, and that susceptibility reappeared when the first infection was eradicated. In recent years, however, Chesney[14] has shown that immunity to a second in-

fection is not dependent upon persistence of the first, but rather upon the length of time elapsing between onset and sterilization. In experimental animals he finds that a certain degree of resistance to re-infection is acquired if the initial infection is allowed to run its course for a few months before the animal is sterilized. This immunity to re-infection is complete to a homologous strain of the *T. pallidum* but is partial only to a heterologous strain. Immunity does not develop if treatment is started early in the course of the disease. The infection in the rabbit can be cured either in the early or the late stage. Animals cured of an initial infection may show different degrees of immunity depending upon many factors, including the length of time the disease was allowed to run its course.

This resistance may be:

1. *Complete* to any subsequent re-infections
2. *Partial,* with the result that subsequent inoculations do not produce any local lesions at the point of inoculation, yet the virus spreads throughout the body and produces a generalized infection
3. *Absent,* the animal being susceptible to re-infection following the first attack of the disease, the second running the same course as the initial one

This partial immunity has a striking significance in regard to the epidemiology of syphilis.

The immunity which develops during the course of syphilis apparently is not a humoral immunity. Antibodies have not been demonstrated. It seems to be a cellular immunity which may be sufficient to prevent any subsequent infection, or to prevent the development of a lesion at the point of entrance, but not sufficient to protect against dissemination of the virus in the body. The whole subject of immunity in syphilis has been reviewed in recent years by Chesney,[17] Harrison,[18] and Brown.[19]

If these degrees of immunity develop similarly in the human, it is likely that many of the cases in which signs of the disease reappear after the lapse of years may be second infections with no local lesions. In other words, the patient who is treated thoroughly and reëxamined for years with negative findings, but who ultimately develops signs of cardiovascular syphilis or other late symptoms, may indeed have been cured of his first infection but have been re-infected without an initial lesion. Because of the known tendency of the disease to become latent, syphilologists have established rigid criterions of cure. Are these too severe, and are many cases being overtreated because a second "blind" infection is mistaken for reactivation of latency?

The immunity which develops in the course of syphilis apparently

is interrupted by early arsphenamine treatment. In fact, Bruck in Norway always advocated a policy of "masterful inaction" in the treatment of syphilis, maintaining that all anti-syphilitic remedies depressed the natural immune processes. Recently Bruusgaard[11] has attempted to follow up the patients treated by his teacher Bruck. The results, while not conclusive, indicate that the percentage of general paresis and cardiovascular syphilis is no higher than among patients better treated.

Public health considerations, however, make it impossible to follow such a policy generally. Moreover, if treatment can be started in the sero-negative primary stage, the chance of cure is nearly 100 per cent (Harrison,[5] Moore[15]).

Onset and Duration of Infectiveness—Though the onset of syphilis characteristically is with an initial lesion and a secondary rash, no history of these symptoms can be obtained in a considerable proportion of males and in a large proportion of females. Infection may occur with no recognizable initial lesions. There are no criterions by which cure can be determined, and the patient may show late effects of the infection after the lapse of years during which all signs of the disease are absent.

Characteristically tending to latency, the syphilologist is puzzled in many late cases as to whether he should upset the symbiotic relationship existing between the organism and the invaded tissues by vigorous treatment which may in itself impair vital organs; or whether by "masterful inaction" he should risk an infectious relapse with the consequent public health danger, and the development of late lesions as a result of inadequate treatment.

Infectious by sex contact and to some extent by casual contact when open lesions are present, some recent studies tend to confirm clinical observations that the seminal fluid of syphilitics may be infectious for years with no macroscopic open lesions on the skin or mucous membranes.

Chronic Carriers—It is uncertain whether syphilis is a curable disease in the sense that every organism can be eradicated from the body with no possibility of relapse.

In syphilis it is well known that a considerable percentage of cases have a tendency to relapse and develop infectious lesions. A comprehensive study of cutaneous and mucosal relapse by Stokes[12] and a collaborating group among 5,952 cases of early syphilis revealed 360 cases which relapsed after original lesions were healed. If in the most expert hands 6.5 per cent of cases relapse, the number in the average clinic and in general practice must be much larger. A committee of

experts assembled by the League of Nations in 1928 outlined as the next most needed step to secure added knowledge of syphilis a study of the results of treatment in various countries.[25]

The most pressing problem in the therapy of syphilis is: Can syphilis in fact be cured? and if so under what conditions? Do our best attempts consist merely in creating a symbiotic relationship between the organism and the tissues, causing no obvious symptoms in a majority of cases but potentially capable of reactivation and infectiousness?

PREVALENCE

It is probably easier to exterminate syphilis in a population than to determine its exact prevalence and distribution. Here is a disease in which the time of onset frequently is obscure; the infection often does not rise above the horizon of clinical recognition; a positive Wassermann test may be the only sign of its existence; even a negative Wassermann is no assurance that the infection has been eradicated; and there is no accurately demonstrable end-point.

Statistics as to the absolute amount of syphilis in a population always will be inaccurate, due to:

1. The unknown percentage of cases which are never diagnosed or treated
2. The frequent absence of definite signs of onset
3. The impossibility of determining whether or not the disease has terminated in a given case
4. The reticence of patients and physicians in notification of cases

One can discuss minimum rates, however, in terms of the number of cases constantly under treatment and the attack rate of treated cases. From these rates, plus a knowledge of the age distribution of the population and the age of onset of syphilis, one can determine specific attack rates by age groups and can estimate the percentage of the population which at some previous time has experienced an attack of the disease.

Cases of Syphilis Constantly under Treatment—During the past 5 years studies made by, and in coöperation with, the U. S. Public Health Service[20] by the 1-day census method in a population totaling 25,822,137, and typical of the population of the country as a whole, reveal 110,039 cases of syphilis constantly under treatment. This represents a prevalence rate of 4.26 per 1,000 inhabitants, and means that more than a half million people in the United States are constantly under treatment because of syphilis. Rates for certain of the areas are given in Table I.

TABLE I

RATES PER 1,000 POPULATION OF CASES OF SYPHILIS UNDER TREATMENT IN CERTAIN LOCALITIES SURVEYED IN THE UNITED STATES CLASSIFIED BY STAGE OF THE DISEASE *

LOCALITY	Total		Early		Late	
	Cases	Rate	Cases	Rate	Cases	Rate
Tennessee (34 counties)	6,323	4.42	2,438	1.70	3,885	2.72
Oregon	2,104	2.40	609	.69	1,495	1.70
Detroit	8,574	6.22	2,898	2.10	5,676	4.12
Mississippi (16 counties)	2,225	3.99	959	1.72	1,266	2.27
Cleveland	6,935	6.03	2,581	2.24	4,354	3.78
Virginia (18 counties)	4,753	3.97	1,775	1.48	2,978	2.48
Iowa	2,990	1.23	1,244	.51	1,746	.72
City of St. Louis and 5 counties	8,293	6.44	2,386	1.85	5,907	4.59
New York State (excl. N. Y. C.)	14,476	2.63	4,139	.75	10,337	1.88
Philadelphia	9,082	4.40	2,702	1.31	6,380	3.09
New York City	29,423	4.90	7,064	1.18	22,359	3.72
14 Communities	4,115	6.71	1,428	2.31	2,727	4.40
Total	99,333	4.05	30,223	1.23	69,110	2.82
Philadelphia, Pa.	9,082	4.4	2,702	1.3	6,380	3.1
Baltimore, Md.	7,462	9.3	1,393	1.7	6,069	7.5
New Orleans, La.	2,676	5.8	1,036	2.3	1,640	3.6
Charleston, W. Va.	1,024	17.0	(a)	(a)	(a)	(a)

* Data from U. S. Public Health Service Records.

a. Data by stage of infection were not available for the Charleston City Clinic, which reported 45 per cent of all the cases.

The rates vary from 17.0 in one city of 60,000 to less than one per 1,000 in certain rural areas.

Annual Attack Rate—Estimates may be made of the annual attack rate from the number of cases found under treatment by the 1-day census and the known turnover of clinic patients. More accurate information is had from a census of new cases which are diagnosed for the first time during a 1-month period. This is available for up-state New York, for 4 large cities, and for 14 additional communities in 6 states, and is presented in Table II.

If the single months during which the census was taken are typical, then there is an indicated annual attack rate of 7.3; divided into early and late syphilis the indicated rate is 3.4 and 3.9 per 1,000, respectively.

If it is assumed that all of the "late" cases, in spite of the physicians' statements to the contrary, had been registered for treatment elsewhere prior to the census, the attack rate of cases which acquired their infection within the preceding year and came for treatment promptly certainly represents a minimum.

TABLE II

ANNUAL ATTACK RATES FOR SYPHILIS ACCORDING TO STAGE OF DISEASE AT TIME OF DIAGNOSIS FOR VARIOUS COMMUNITIES

Name of Community	Population	Estimated Cases * and Annual Attack Rates					
		Total Cases	Rate	Early Syphilis Cases	Rate	Late Syphilis Cases	Rate
Philadelphia, Pa.	2,064,200	19,344	9.4	7,980	3.9	11,364	5.5
Baltimore, Md.	804,874	8,560	10.6	3,972	4.9	4,588	5.7
New Orleans, La.	458,762	6,528	14.2	3,744	8.2	2,784	6.0
Charleston, W. Va.	60,411	2,964	49.1	1,440	23.8	1,524	25.3
14 Communities (Resurvey)	654,581	8,604	13.1	5,592	8.5	3,012	4.6
Upstate New York (Resurvey)	5,786,389	25,524	4.4	10,752	1.8	14,772	2.6
Total	9,829,217	71,524	7.3	33,480	3.4	38,044	3.9

* Based on cases seeking treatment for first time during a 1-month period.

For every 100 cases constantly under treatment in these communities there were 173 new cases which were diagnosed for the first time during the preceding year, of which 83 were early cases. Applying to the whole country this same ratio to the surveyed cases under treatment in the population of 26,000,000, it is estimated that in the United States 871,000 cases of syphilis are diagnosed for the first time each year and that of these cases 408,000 are early syphilis.

The length of time patients are treated is indicated by these ratios,

TABLE III

CASES OF SYPHILIS CONSTANTLY UNDER TREATMENT AND RATES PER 1,000 POPULATION FOR CITIES IN DIFFERENT POPULATION GROUPS

Groups of Cities		Population	Cases	Rates per 1,000 Population
13 cities over 100,000	(a)	13,699,514	80,734	5.89
7 cities 50,000 to 100,000	(a)	464,929	3,292	7.08
8 cities 10,000 to 50,000	(a)	217,897	2,869	13 16
Total	(a)	14,382,324	86,895	6.04
6 cities over 100,000	(b)	1,472,443	7,064	4.80
6 cities 50,000 to 100,000	(b)	435,493	1,753	4.03
56 places 10,000 to 50,000	(b)	1,065,535	3,374	3.17
Total	(b)	2,973,471	12,191	4.10

a. Data from U. S. Public Health Service Records.
b. Data from 1-day survey of up-state New York, May 1, 1930.

from which it appears that on the average syphilis patients remain under treatment 6½ months.

Urban vs. Rural Rates—The rates of cases under treatment by communities of different population groups are summarized in Table III. In one group of 13 cities, surveyed by the U. S. Public Health Service, of over 100,000 the rate varies from 4 to 13.3 with an average of 5.89 per 1,000; in 7 cities of 50,000 to 100,000 the rate varies from 1.1 to 12.0 with an average of 7.08; in 8 cities of under 50,000 the rate varies from 5.7 to 31.2 with an average of 13.16.

A study of the rates for cities of different sizes in up-state New York where the population is rather uniform and where other influencing conditions are practically the same for all the communities is shown also in Table III. The attack rate in a general way varies with the size of the city, the larger the city the higher the attack rate. However, it should be pointed out that whereas the rate varies with the size of the community when grouped as above, a detailed study of cities shows no direct correlation between attack rate and density of population. The cities studied by the U. S. Public Health Service were widely scattered and the proportion of colored and white population probably was unequal in the three groups. This and other variables probably account for the wide variation in the individual groups.

STAGE OF THE DISEASE

Of more significance than the total rate are the rates of early cases in which the infection was acquired within 1 year from the date of survey. Early cases under treatment constitute 30 per cent of the total (Table IV). The considerable variation found in the percentage of early and total cases in different communities may be due to a

TABLE IV

PREVALENCE OF SYPHILIS BY STAGE OF THE DISEASE AND SEX OF THE PATIENT IN COMMUNITIES SURVEYED, SHOWING THE RATES PER 1,000 POPULATION

Syphilis

Stage of the Disease	Number of Cases *			Rates per 1,000 Pop.		
	Total	Male	Female	Total	Male	Female
Early	32,954	22,155	10,799	1.28	1.70	0.84
Late	77,085	45,710	31,375	2.98	3.51	2.46
Total	110,039	67,865	42,174	4.26	5.21	3.30

* Exclusive of the Charleston City Clinic cases for which data by Stage of Infection were not available.

declining attack rate; a variation in the delay in seeking treatment; or differences in the effort to keep cases under treatment.

TREATMENT

Time Treatment is Started—From other sources[n] exact data are available as to the interval between the onset of the disease and the beginning of treatment. Among those patients who seek treatment during the first year, only 11 per cent (204 in 1,734 cases) begin their treatment in the sero-negative primary stage or during the first few weeks when possibility of eradicating the disease is greatest. Another 22 per cent seek treatment for the first time during the primary stage but after the blood Wassermann has become positive, while the remainder, two-thirds of the total, have fully developed secondary lesions before seeking medical care. Expressed in terms of the time which elapses between onset and treatment: one-third of the cases come during the first month; 55 per cent during the first two months; and 37 per cent allow from 2 to 12 months to elapse.

These data deal only with early syphilis and do not include the very considerable number of patients who are diagnosed for the first time during routine examinations, or who seek relief for symptoms years after the onset of the disease. For New York State more than one-half of the males and two-thirds of the females come under treatment for the first time more than 1 year after onset of the disease (both sexes 57.9 per cent). In 18 other communities, including several large cities, less than one-half of the cases coming initially for treatment were classed as "early" syphilis.

Syphilis can never be controlled while more than one-half of the cases are not recognized for more than a year after onset.

Where Patients are being Treated—Of the cases in the population of 26,000,000, surveyed by the U. S. Public Health Service, 64 per cent are being treated by private practitioners as private patients, while 36 per cent are being treated in public clinics, hospitals and similar institutions. Forty-one per cent of all of the registered physicians in these areas were constantly treating one or more cases (3,089 physicians in a total of 7,530). The bulk of cases, however, are concentrated in the public clinics and in the hands of very few physicians: 10 per cent of the physicians are treating two-thirds, 5 per cent of the physicians are treating 50 per cent, and 1 per cent of the physicians are treating 25 per cent of the cases. In other words, nearly three-fourths (72 per cent) of all known cases are under treatment by public clinics and specialists; viz., the 5 per cent of physicians who have 12 or more patients constantly under their care.

TABLE V

AGE AT ONSET OF SYPHILIS AMONG 2,227 PATIENTS TREATED IN THE 3 ST. LOUIS CLINICS AND IN THE 5 CLINICS PARTICIPATING IN INQUIRY INTO SYPHILIS TREATMENT*

Ages	Male			Female			Total Cases	Per cent
	Total	White	Colored	Total	White	Colored		
1 to 9	2	1	1	2	2	0	4	0.2
10	3	1	2	3	0	3	6	0 3
11	2	1	1	3	2	1	5	0.2
12	4	1	3	9	4	5	13	0.6
13	3	1	2	15	6	9	18	0.8
14	8	5	3	17	8	9	25	1.1
15	21	10	11	35	14	21	56	2.5
16	35	17	18	54	19	35	89	4.0
17	48	25	23	53	19	34	101	4.5
18	53	32	21	51	23	28	104	4.7
19	81	45	36	56	27	29	137	6.2
20	100	54	46	59	33	26	159	7.1
21	100	62	38	65	36	29	165	7.4
22	92	52	40	57	24	33	149	6.7
23	94	53	41	46	22	24	140	6.3
24	72	42	30	30	14	16	102	4.6
25	80	52	28	36	18	18	116	5.2
26	73	50	23	30	13	17	103	4.6
27	68	47	21	35	19	16	103	4.6
28	69	46	23	18	12	6	87	3.9
29	52	38	14	24	10	14	76	3.4
30	52	34	18	18	9	9	70	3.1
31	41	29	12	12	8	4	53	2.4
32	38	28	10	19	11	8	57	2.6
33	35	26	9	13	8	5	48	2.2
34	22	15	7	9	3	6	31	1.4
35	25	20	5	9	5	4	34	1.5
36	24	15	9	7	5	2	31	1.4
37	17	13	4	3	2	1	20	0.9
38	16	14	2	6	5	1	22	1.0
39	15	10	5	3	3	0	18	0.8
40	11	7	4	4	3	1	15	0.7
41	13	10	3	3	2	1	16	0.7
42	6	4	2	1	1	0	7	0.3
43	8	4	4	2	0	2	10	0.4
44	4	4	0	1	1	0	5	0.2
45	7	3	4	3	2	1	10	0.4
46	4	2	2	1	1	0	5	0.2
47	5	4	1	3	1	2	8	0.4
48	2	2	0	2	2	0	4	0.2
49	3	1	2	1	1	0	4	0.2
50	0	0	0	1	1	0	1	0.04
Total	1,408	880	528	819	399	420	2,227	99.94

* Data from U. S. Public Health Service Records.

DISTRIBUTION

Age Distribution—Haustein[21] has assembled all available data on age at onset of syphilis for various European countries.

Most of the data on age distribution of cases in the United States deal with the age of patients when the case is reported or at the time treatment is started. A tabulation of the age at onset of 2,227 patients with acquired syphilis, selected from among the clientele of seven large clinics in different states, is shown in Table V.

The peak for the whole group occurs at the age of 21; also for both sexes. However, when divided according to color, the peak for colored females is found at 16 years and for white females at 21 years; for colored males at 20 years and for white males 21 years.

An examination of the percentage infected at the two age periods of 20 and 30 years shows very strikingly that females are infected at a much earlier age than males, and that colored persons are infected earlier than white people (Table VI).

TABLE VI

PERCENTAGE OF TOTAL CASES WHICH OCCUR BEFORE AGE 21 AND AGE 31

AGE GROUPS	Male		Female	
	White	Colored	White	Colored
Age 1–20	21.9	31.6	39.3	47.6
Age 1–30	76.0	84.0	83.7	90.9

Sex Distribution—From the prevalence surveys, complete data are available as to the sex distribution of patients. Of the 110,039 patients, 67,865 were male and 42,174 were female, the disease being roughly 50 per cent more prevalent among males (Table IV). Some of this difference may be due to the larger proportion of female patients in whom the disease is not recognized and treated. In support of this is the fact that males under treatment in the early stages outnumber females more than 2 to 1.

The ratio of female to male cases for different countries, collected by Harrison[22] shows a similar preponderance of male infections.

The prevalence of syphilis among pregnant women is of considerable practical interest because of the splendid results of treatment in insuring healthy offspring. Elsewhere[23] I have summarized all available published reports on this problem which showed an average of 6.5 per cent pregnant women infected with syphilis. These reports were chiefly of maternity hospital and dispensary patients.

Geographical Distribution—Syphilis is not evenly distributed in the population, although climate itself apparently is not a factor. The distribution between urban and rural areas is presented elsewhere. More prevalent in the southern states than in the northern and western, even though the increase among negroes is eliminated; almost pandemic in boom towns, with a large floating population; comparatively rare in the more static rural populations of some states, more prevalent among those in the lowest economic groups; it is possible to localize somewhat the problem of syphilis.

Racial Prevalence—The prevalence surveys reveal a great disparity between negro and white rates, which is supported by many other sources of information. Among a population of nearly 6,000,000 in which negroes form a considerable percentage of the total, the rate of cases under treatment for white was 4.16 and for negro 10.04, per 1,000 (Table VII). Wassermann surveys of whole negro populations conducted in recent years by the U. S. Public Health Service[25] in a number of representative rural counties in southern states, furnish added evidence of the higher prevalence, averaging about 20 per cent of positive Wassermann reactions in the entire negro population.

TABLE VII

PREVALENCE OF SYPHILIS BY SEX AND COLOR OF THE PATIENT IN ONLY THOSE LOCALITIES WHERE THE SURVEY WAS MADE AS TO COLOR*

SYPHILIS	Total			White			Colored		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Number of Cases	32,756	19,763	12,993	17,987	11,838	6,149	14,769	7,925	6,844
Rates per 1,000 Population	5.65	6.77	4.51	4.16	5.42	2.87	10.04	10.80	9.28

* Includes Tennessee, Mississippi, Virginia, St. Louis and 5 counties, Charlestown, W. Va., Baltimore, Md., and New Orleans, La.

Cyclic Prevalence—No evidence has been adduced in the United States that syphilis shows a cyclic prevalence comparable with other infectious diseases, except for increases which have followed wars and social changes. In Sweden, a 7-year cycle has been described.

Season seems to have no bearing on the attack rate, although new cases in some clinics increase after the summer and Christmas vacation periods.

SOCIAL FACTORS

The amount of extra-marital sex intercourse and the efficiency and utilization of medical service determine to a large extent the prevalence of syphilis. The prevalence of the disease is higher among those in the lower economic groups, and evidence from a number of European countries shows a direct relation between economic conditions and syphilis rates. These variations are accentuated by social upheavals such as occurred in a number of countries following the war. The World War resulted in an enormous increase in this disease, which was apparent even in the Scandinavian countries, which were not participants. Alcoholism is another factor which predisposes to exposure and infection.

TREND OF SYPHILIS RATES

An essential element in judging the success of control efforts, the trend of syphilis infection is difficult to determine. During the past year re-surveys of prevalence have been made in New York State, and in the 14 communities surveyed by the U. S. Public Health Service in 1926–1927, using exactly the same methods in each instance. Detailed data are not yet tabulated for the Service surveys but total cases in the re-survey exceed those found in the initial study.

In 1930 in New York State the total cases under treatment were 15,732, while in 1927 the total was 12,936, an increase of 2,796. The increase was chiefly in clinic cases and in late cases—the early cases being about the same in the two surveys.

Cases notified to the Service, which admittedly represent only a part of treated cases, are not decreasing.[24] In New York State, where current checks are made of all cases diagnosed for the first time in approved laboratories, annual totals show no decline.

Deaths from general paresis and new admissions of this disease to state institutions do not furnish conclusive evidence as to current trends and are complicated by the recently introduced malaria therapy.

Clinicians agree generally that congenital syphilis has decreased. Data from the military forces are inconclusive, with a declining rate in the Army and a stationary rate in the Navy. Space does not permit a discussion of trends and rates in European countries other than the general statement that syphilis increased markedly during and after the war, reaching a peak in 1920 and declining to one-half the 1920 prevalence by 1925–1926. In some countries the rate since then seems to be stationary or on the increase (Harrison[22]), while in others the decline has continued (League of Nations[25]).

Certainly in the United States there is no conclusive evidence that

syphilis is declining. On the contrary, the best evidence available from resurveys of cases under treatment shows a slight increase during the past 4 years.

PERCENTAGE OF THE POPULATION PREVIOUSLY INFECTED

A number of students of this problem (Haustein, Jaeger, *et al.*[n]) by a study of annual new cases and known age distribution, have estimated by different methods the per cent of the population at different ages which has experienced an attack of the disease. A fair summary statement is that approximately 20 times the annual attack rate represents the true volume of syphilis infected persons in the community. Haustein has estimated the percentage of persons who between the ages of 15 and 50 have contracted syphilis, varying from 18 per cent in Berlin, to 0.8 per cent for Switzerland. Twenty times the annual attack rate represents for up-state New York a rate of 88 per 1,000; and for the population group given in Table II, 145 per 1,000.

EPIDEMIOLOGICAL EVIDENCE OF CONTROLABILITY

Here is a disease in which epidemiological evidence argues for the practicability of control and eradication through direct public health action. Syphilis appears to spread chiefly through a series of localized outbreaks which can be traced to comparatively few determinable sources; the bulk of infection in the white race is concentrated in the cities; most of the cases have a limited period of infectivity; and elimination of infectious sources will have a cumulative effect on the trend.

The existence of an unknown percentage of sub-clinical cases, many of which are infectious, does not in my opinion invalidate the major conclusion. A large proportion of cases are acquired from untreated and inadequately treated cases. These can be recognized by clinical examination and serological tests and can be made non-infectious by treatment.

By these available methods it seems practicable to eradicate syphilis as a public health problem.

REFERENCES

1. Hirsch, August. *Handbook of Natural and Geographic Pathology*, Vol. II, Chap. 2.
2. Sudhoff, Karl and Garrison, F. H. *Essays in the History of Medicine.*
Garrison, F. H. *An Introduction to the History of Medicine.*
3. Parran, Thomas, Jr. *Annual Report of Committee on Research in Syphilis*, New York City, 1930.
4. Levaditi, C., Schoen, R., and Sanchis-Bayarri, M. V. Does the Syphilitic virus constitute one development cycle of which *Treponema pallidum* is the only known phase? *Ann. de l'Inst. Pasteur*, 42: 475 (May), 1928.
5. Warthin, A. S., and Olsen, R. E. The Granular transformation of spirocheta pallida in aortic focal lesions, *Am. J. Syphilis*, XIV: 433 (Oct.), 1930.
6. Butler, C. S. Relation of Syphilis and Yaws, *Ann. Int. Med.*, III: 175 (Aug.), 1929.
7. Jahnel, F., and Lange, J. Syphilis und Framboesie im Lichte Neuerer Experimenteller, *Untersuchungen. klin. Wchnschr.*, 7: 2133–2140 (Nov. 4), 1928.

8. Coutts, F. J. H. Venereal Disease from the Epidemiological Point of View, *Brit. J. V. D.*, 5: 1–21 (Jan.), 1929.
9. Warthin, A. S. Lesions of Latent Syphilis, *Brit. M. J.*, 2: 236 (Aug. 10), 1929.
10. Turner, T. B. The Race and Sex Distribution of Lesions of Syphilis Among 10,000 Cases, *Bull. Johns Hopkins Hosp.*, 46: 159 (Feb.), 1930.
11. Warthin, A. S. Cardiovascular syphilis, *Atlantic M. J.*, XXX: 675 (Aug.), 1927.
12. Stokes, John, *et al.* Cutaneous and Mucosal Relapse in Early Syphilis and its differentiation from reinfection, *Trans. International Congress on Dermatology*, Copenhagen. Reprinted *V. D. I.*, Wash., D. C., 12: 55 (Feb.), 1931.
13. Neisser, Albert. Erforschung der syphilis, *Arbeiten aus dem Kaiserlichen Gesundheitsamte*, Vol. XXXVII, 1911.
14. Chesney, A. M. Present Day Conceptions of Immunity in Syphilis, *Medicine*, 5: 463–547 (Nov.), 1926.
15. Harrison, L. W. Review of experimental research in syphilis and its possible application to man, *Brit. J. V. D.*, 5: 173 (July), 1929.
16. Brown, W. H. *Trans. International Congress on Dermatology and Syphilis*, Copenhagen, 1930.
17. Bruusgaard, E. Examination of syphilitics treated non-specifically, *Norsk Mag. f. Laegevidensk.*, Oslo, 89: 1222 (Dec.), 1928.
18. Harrison, L. W. The Treatment of Syphilis, *Special Report Series, No. 132*, London, 1929.
19. Moore, J. E., and Keidel, A. Treatment of early syphilis, *Bull. Johns Hopkins Hosp.*, 39, 1–15 (July), 1926.
20. Usilton, L. J. Prevalence of Venereal Disease in the United States, *V. D. Inf.*, Wash., D. C., 11: 542 (Dec.), 1930.
21. Haustein, H. Statistik der Geschlechtskrankheiten, *Handbuch der haut- und Geschlechts Krankheiten*, 22: 1927.
22. Harrison, L. W. Some Aspects of the Epidemiology of the Venereal Diseases, *Proc. Roy. Soc. Med.*, London, 1931.
23. Parran, Thos., Jr., and Usilton, L. J. Extent of the Problem of Syphilis and Gonorrhea in the United States, *Trans. Natl. Congress of Social Workers*, 1929. *Am. J. Syph.*, 14: 145 (Apr.), 1930.
24. *Annual Reports of Surg. Gen.*, U. S. P. H. Service.
25. *League of Nations; Preliminary Report of Committee of Experts on Syphilis and Cognate Subjects*, 1928.

Manuscripts and Poor English

THE scrutiny of hundreds of manuscripts over a term of years makes us sure of our ground when we allege that at least nine of every ten of them could be vastly improved, as literature, by a critical redaction; and of these many stand in very serious need of such redaction.

Not that the violations of good usage are flagrant illiteracies. The flaws are in such things as poor paragraphing; badly constructed sentences, in which two nominatives get to quarreling with one another; plural relatives with singular antecedents, or *vice versa;* the excessive use of trite words and phrases; the use of the wrong word—" due to " (propositional) for " owing to," " advance " for " advancement," " practically " for " almost," the use of unjustifiable neologisms such as " minify "; the use of orphaned or fused participles; the placing of adverbs; failure to recognize a gerund; and so forward to great diversity. In addition, sentences are frequent which, while they exhibit no specific fault, are awkward stumbling blocks for the reader. They require re-phrasing to recapture fluidity. Often a word, ordinarily good, may be used in an unsuitable context. Often poor word-selection needs correcting.

In brief, we discover that most manuscripts would be measurably improved by the ministrations of a word-smith. You will see exactly what is meant if you recall that a word-***smith*** is a word-***smoother***. One may say perhaps that the difference is that between a shirt that has been ironed and one that has not. To wear the un-ironed shirt is entirely decent but not sartorially impeccable. " Homily on Sand in the Sugar," Waverly Press, Inc., Baltimore, Md.

Syphilis in a Rural Negro Population in Tennessee*†

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THE fact that syphilis affords the topic of discussion for this program is evidence of the importance that it is assuming in the minds of public health workers throughout the country—suffice it to say that it is second to few diseases in its effects upon the public health.

While it is well to remember that the venereal disease problem has exercised the minds of those charged with the protection of the community's health since early ages, the varied methods of attack, and the changing points of view afford evidence of the unusually complex and difficult nature of venereal disease control.

Fundamental to the control of any communicable disease is knowledge of (1) its incidence, (2) its modes of spread, and (3) the means of its prevention. Without this basic knowledge, control measures will lack that specificity of approach which is regarded as essential to sound procedure.

As regards syphilis, the first requirement, namely, knowledge of its incidence, is for obvious reasons sadly lacking. It follows that knowledge of the means of prevention is also inadequate since this, at least from the point of view of administration, is in part dependent upon knowledge of the incidence.

It is generally believed that the incidence of syphilis among negroes is considerably higher than that among whites, but we have not had sufficiently accurate information to do more than speculate on the extent of racial difference. Indeed we have had practically no information as to the actual incidence in any unselected group of people, either white or black.

During the past year, the Tennessee Department of Public Health has been making a study of syphilis in a rural group of negro families. The study has had three major objectives:

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* Read at a Joint Session of the Health Officers and Epidemiology Sections of the American Public Health Association at the Sixtieth Annual Meeting at Montreal, Canada, September, 17, 1931.

† This study has been made possible by a grant to the Tennessee Department of Health from the Julius Rosenwald Fund.

1. To determine the incidence of syphilis among an unselected group of negroes of all ages
2. To investigate the effects of syphilis upon the negro individually, and as a family unit
3. To determine to what extent negro personnel can be used in a state-wide program of syphilis control

This preliminary report is concerned primarily with the first objective, the prevalence of syphilis in the entire group. Tipton County, Tenn., was selected for study. It is essentially rural with a population of 27,715, of which negroes number 12,028. The family has been used as a unit of study rather than the individual.

Personnel of the field study unit consists of 2 physicians, 1 nurse and 1 office clerk. All are negroes except 1 physician who has acted as director.

A Wassermann survey of an unselected group was made in the beginning, and all positives were rechecked before they were classed as definitely positive.

DISTRIBUTION BY AGE AND SEX

Table I shows the age and sex distribution of positive Wassermanns among the entire group tested.

Of 2,323 individuals tested, 602, or practically 26 per cent, are positive. It is of interest to note that approximately 10 per cent of

TABLE I

AGE AND SEX DISTRIBUTION OF INDIVIDUALS WITH POSITIVE WASSERMANNS IN A GROUP OF NEGRO FAMILIES IN TIPTON COUNTY, TENN., 1930

Age	Male			Female			Total		
	Total Exam.	Pos.	% Pos.	Total Exam.	Pos.	% Pos.	Total Exam.	Pos.	% Pos.
0– 4	58	5	8.6	60	7	11.6	118	12	10.2
5– 9	107	13	12.1	124	10	8.1	231	23	10.0
10–14	155	13	8.4	141	15	10.6	296	28	9.5
15–19	182	36	19.7	175	43	24.6	357	79	22.1
20–24	116	37	31.9	145	74	51.0	261	111	42.5
25–29	104	45	43.3	109	51	46.8	213	96	42.2
30–34	63	25	39.7	62	28	45.1	125	53	42.4
35–39	77	28	36.4	80	24	30.0	157	52	33.1
40–44	45	14	31.1	63	26	41.3	108	40	37.0
45–49	47	16	34.0	74	14	18.9	121	30	24.8
50–54	78	24	30.8	48	12	25.0	126	36	28.6
55–59	59	9	15.3	31	8	25.8	90	17	18.9
60 and over	71	18	25.3	49	7	14.3	120	25	20.8
Total	1,162	283	24.4	1,161	319	27.4	2,323	602	25.9

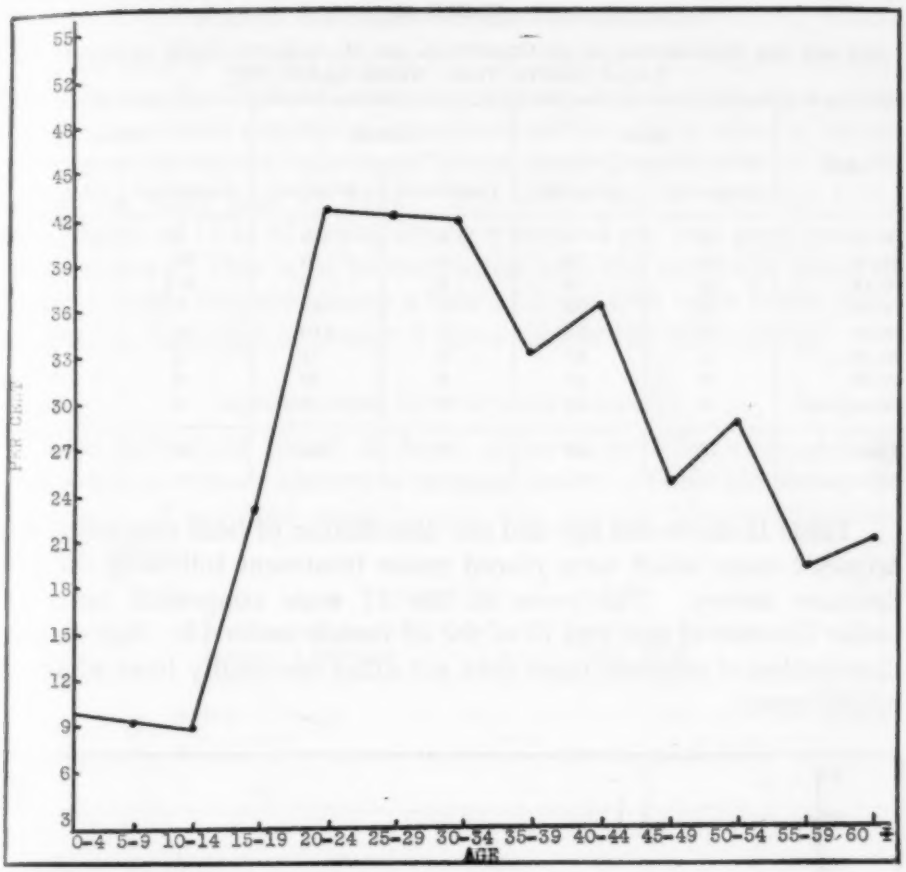

FIGURE I—Percentage distribution of positive Wassermanns in each age group, in a group of negro families, in Tipton County, Tenn., 1930

children under 15 tested were positive. There is no significant difference as to sex—24.4 per cent males and 27.4 per cent females were positive.

Figure II shows the age distribution of the 602 individuals with positive Wassermanns. Of these, 86.6 per cent are between the ages 15 and 50.

Of the 602 with positive Wassermanns, 526 have been placed under active treatment, which allowed a more detailed study than could be made of the entire group during the preliminary survey. The 76 found positive, but not placed under treatment, were those who for various reasons failed to report to the clinics, on account of moving from the county, death, illness, inaccessibility and failure to coöperate.

Of the 526 cases under treatment and observation, 62 are classed as congenital and 464 as acquired. Thirty-seven of the congenital cases are males and 25 females.

TABLE II

AGE AND SEX DISTRIBUTION OF (1) CONGENITAL AND (2) ACQUIRED CASES OF SYPHILIS IN TIPTON COUNTY, TENN., NEGRO GROUP, 1930

Age	Male		Female		Total	
	Congenital	Acquired	Congenital	Acquired	Congenital	Acquired
0– 4	3	0	6	0	9	0
5– 9	14	0	9	0	23	0
10–14	14	0	3	2	17	2
15–19	2	32	5	35	7	67
20–29	2	74	2	110	4	184
30–39	2	47	0	51	2	98
40–49	0	27	0	30	0	57
50 and over	0	40	0	16	0	56
Total	37	220	25	244	62	464

Table II shows the age and sex distribution of both congenital and acquired cases which were placed under treatment following the preliminary survey. Thirty-one of the 37 male congenital cases are under 15 years of age, and 18 of the 25 female under 15. Age and sex distribution of acquired cases does not differ essentially from what one might expect.

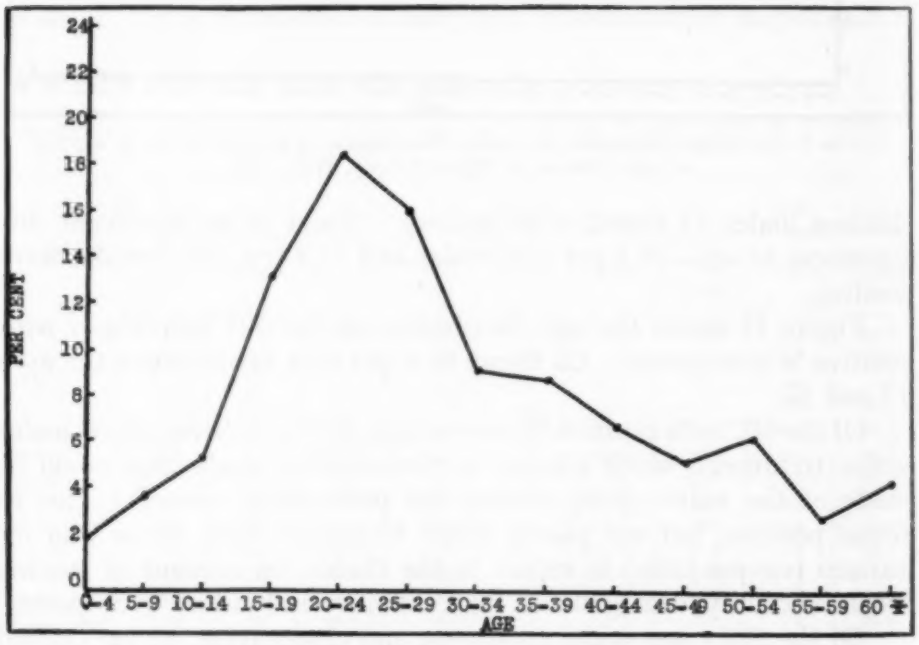

FIGURE II—Age distribution of 602 negroes with positive Wassermann, Tipton County, Tenn., 1930

RACIAL DIFFERENCES IN PREVALENCE

It has been of interest to compare the incidence of positive Wassermanns among the Tipton County negro group with that among a group of white industrial employees in another section of the state of whom a Wassermann survey was made by the State Department of Health during the early part of 1931. The white survey included 1,712 white males, of 15 to 65 years, among whom 4.3 per cent gave positive Wassermanns. This is to be contrasted with the same age group of Tipton County negroes among whom 32.6 per cent were found to be positive, an incidence of almost 8 times that in the white group.

KNOWLEDGE OF PRIMARY LESION

Each individual found to have acquired syphilis was carefully questioned as regards history of primary lesion. Table III shows the percentage of acquired cases by sex who gave a history of known primary lesion.

TABLE III

SEX DISTRIBUTION OF CASES OF ACQUIRED SYPHILIS ACCORDING TO HISTORY OF KNOWN PRIMARY LESION IN TIPTON COUNTY, TENN., 1930

Sex	History of Primary Lesion	No History of Primary Lesion	Per cent with no History of Primary Lesion
Male	130	90	40.9
Female	65	179	73.4
Total	195	269	58.0

Note that 40.9 per cent of males deny knowledge of primary lesion, while 73.4 per cent of females give a negative history, indicating that the likelihood of infection escaping notice by the female is 1.8 times that by the male. It is obvious that too much reliance should not be placed upon the patient's statement with regard to history of primary lesion, so the actual percentage figures may be too large, but it is not unreasonable to assume that the relative percentages as regards sex differences are fairly accurate; considerably more accurate, perhaps, than would obtain among a group of white people.

It was considered of interest to inquire into the history of each case with respect to gonorrhea. Of the 90 males with acquired syphilis, but denying knowledge of primary lesion, 35.5 per cent gave a history of having had gonorrhea. It is possible that in many instances of syphilis in which knowledge of primary lesion is denied, the infection dates from the time of the gonorrhea. However, no particular signifi-

cance can be placed upon this finding, since it is noted that of all the male cases of acquired syphilis, regardless of history of known primary lesion, 37.3 per cent gave a history of having had gonorrhea; and of the total cases, both sexes, 20.5 per cent gave a history of gonorrhea.

DATE INFECTION WAS ACQUIRED

Table IV shows the distribution of cases with history of known primary lesion according to time lesion was acquired. Of the 195 cases, 36 or 18.5 per cent acquired the infection within 1 year, and 52.8 per cent within 5 years.

TABLE IV

DISTRIBUTION OF CASES OF ACQUIRED SYPHILIS ACCORDING TO DATE PRIMARY LESION WAS ACQUIRED. NEGRO FAMILIES IN TIPTON COUNTY, TENN., 1930

Date Lesion Was Acquired	Number of Cases	Date Lesion Was Acquired	Number of Cases
Present Year—1930	36	6–10 Years Ago	33
1 Year Ago	18	11–20 " "	28
2–5 Years Ago	49	Over 20 " "	31
Total			195

It affords interesting speculation to apply the foregoing figures to the total colored population of the county, which is fairly representative of the average southern county. On the basis of findings (26 per cent of the total population, of whom 88 per cent are acquired, 18.5 per cent infected within 1 year) it would seem that in 12,000 there are approximately 2,746 cases of acquired syphilis; and on the assumption that the duration of infection does not differ essentially whether or not the patient had knowledge of primary lesion, approximately 508 cases occurred within 1 year, or an annual morbidity rate for acquired cases of 4,233 per 100,000 population.

TREATMENT HISTORY

The treatment history of these cases clearly indicates the magnitude of the problem of syphilis control among negroes which faces preventive medicine. Of the 526 cases under observation, only 73, or 13.9 per cent, had received any treatment. Thirteen of the 73 received neoarsphenamine and mercury, with an average of 7 doses of arsenical and 6 of mercury per patient. Thirty-three received neoarsphenamine only, as follows: 16 received 3 doses or less, 13 from 4 to 6, and 4 from 7 to 13 doses. Four patients received mercury only, 22 received oral or mixed treatment, and in 1 case type of treatment was not stated.

One can then appreciate the apathy with which the average negro views luetic infection, and the problems that a mass treatment project will involve. Too, the need for stimulating physicians to a better type of syphilis practice is quite apparent, when one considers the inadequacy of the treatment given when the negro applied for treatment. In less than one-fourth of instances was the patient likely to be rendered non-infectious for any considerable period of time.

STILLBIRTHS AND MISCARRIAGES

The relationship between syphilis and stillbirths is well known. Family histories have been obtained upon all families in the study group and Table V shows the number of stillbirths and miscarriages in relation to the presence or absence of syphilis among parents.

TABLE V

STILLBIRTHS AND MISCARRIAGES IN RELATION TO POSITIVE AND NEGATIVE WASSERMANN IN PARENTS, NEGRO FAMILIES, TIPTON COUNTY, TENN., 1930

Condition of Parents	Number of Pregnancies	Number of Live Births	Number of Still Births	Number of Miscarriages	Per cent Pregnancies Resulting in		
					Live Births	Still-births	Miscarriages
One or both Pos. Wass.	859	626	77	156	72.9	8.9	18.2
No Positive Wass. in either	243	235	1	7	96.7	0.4	2.9

In families in which one or both parents had positive Wassermanns, a total of 27.1 per cent of all pregnancies resulted in either stillbirths or miscarriages—8.9 per cent stillbirths, and 18.2 per cent miscarriages. This is to be contrasted with the group in which neither parent is known to be positive (with only 3.3 per cent of miscarriages and stillbirths).

Thus, the likelihood of either a miscarriage or stillbirth, when either parent has a positive Wassermann, is 8.2 times that when neither parent has a positive Wassermann—or the stillbirth rate among parents with positive Wassermanns is 123 per 1,000 live births, the miscarriage rate 249.2; among parents with negative Wassermanns, the stillbirth rate is 4.2 and the miscarriage rate is 29.8.

SUMMARY

1. A Wassermann survey of a group of negro families in Tipton County, Tenn., has been made.

2. Of a total of 2,323 individuals of all ages tested, 602 or 26 per cent were found to have positive Wassermanns.

3. Eighty-six and six-tenths per cent of these were between the ages of 15 and 50.

4. Of 562 cases placed under treatment and observation, 62 were classed as congenital, and 464 as acquired syphilis.

5. When persons are infected with syphilis, the likelihood that it will not be apparent to females is 1.8 times that of it not being known to males.

6. Of 195 cases giving a history of known primary lesion, 18.5 per cent stated that the lesion was acquired within the past year.

7. Data collected allow for the estimation that the annual morbidity rate for cases of acquired syphilis in Tipton County, Tenn., is approximately 4,233 per 100,000 population.

8. Treatment of cases is shown to be wholly inadequate.

9. The likelihood of a pregnancy resulting in either a stillbirth or miscarriage when either parent has a positive Wassermann is 8.2 times that of such an occurrence when neither parent has a positive Wassermann.

Sand in the Sugar

. . . This is, of course, a parable. Sending a manuscript to the type-machines to be transmuted into printed matter when that manuscript is marred with typographical inconsistencies and improprieties is very much like putting a scoopful of sand in the sugar-sack. Ill-advised persons believe that printers exercise some magic by which the blemishes in manuscript are removed. There is no such magic. The sand must be patiently hunted for grain by grain.

Presumably when the author gives " copy " to the printer it is ready to be set into type. The author may say to himself, or even vocally, " They's wunnertwo li'l things in there—but we'll catch that in the proof." The printer knows that in at least nineteen cases of every twenty, there are not merely one or two but many times that number. " But (he may reflect) that's the author's funeral. He's paying for authors' alterations, I'm not. Or if he wansta lettem lie, why should I worry? What's the diff, anyhow? "

And so author and printer enter into a conspiracy to put sand in the sugar—" sand " that, once it gets into type, can very seldom be entirely sifted out. And neither printer nor author thereafter has the privilege of saying what guest shall eat of the feast they have prepared. Any literate person can read their product. Perhaps many of them will not be sensitive to the improprieties. But the most discriminating reader will; and that's the reader that the author particularly (it may be supposed) wishes not to insult.

It is no easier to take the " sand " out of manuscript than it is to take it out of proof. But it is very much simpler to do so and in consequence the doing is more efficacious. And it is very much cheaper, for it can be done, ordinarily, with pen-strokes. The author is serving both his pride and his purse if he has it done in manuscript rather than if he waits until the cost appears in " authors' alterations." " Homily on Sand in the Sugar," Waverly Press, Inc., Baltimore, Md.

The Control of Syphilis from the Health Officer's Viewpoint*

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SYPHILIS has been known in modern history for more than 400 years. In that time it has become, except for the common cold and gonorrhea, among the most prevalent of communicable diseases. The treponema pallidum has been known as the causative organism of syphilis for 25 years. The Wassermann reaction has been available as a laboratory aid in the diagnosis of syphilis for 24 years. The arsphenamines have constituted the keystone of anti-syphilitic therapy for 16 years. What other disease would so long have been ignored in the face of so complete an armamentarium! Someone has said that if syphilis were only coughed and sneezed it would have been wiped out long ago.

The treponema is delicate and lives only on moist surfaces; there is no intermediary host, the disease being spread from person to person by only the most intimate of contacts; there can be no explosive outbreaks; for control purposes only that part of the population between 15 and 45 years, and especially between 20 and 30 years of age, need be considered; the disease is, in most instances, openly communicable only for a few months at most, even when untreated; the diagnosis is easily made by methods which are readily available and remedies are everywhere at hand which will quickly sterilize the patient.

Yet where are we in the control of syphilis?

Among health officials there are a few who are striving to secure its recognition as a major public health problem. Associated with them are the social hygiene associations and a small group of physicians who are as interested in the control of syphilis as they are in the more technical matter of its treatment. It is the rare city health officer who pays more than passing attention to the incidence of syphilis in his community. Too often it is necessary to plead against his reduction of the next year's budget for the "venereal disease" clinic. In the smaller cities and towns the usual reaction to this enormous

* Read at a Joint Session of the Health Officers and Epidemiology Sections of the American Public Health Association at the Sixtieth Annual Meeting at Montreal, Canada, September 17, 1931.

problem is poorly disguised irritation over the unwelcome responsibility for following up the occasionally reported patient who has lapsed treatment, or the even more rarely reported source of infection.

There are clinics here and there; some worthy of the name, but more often overcrowded; poorly organized; indulging in routine, mass treatment; lacking any semblance of privacy; operating at inadequate and inconvenient hours; and understaffed with a personnel compelled to think in terms of minutes per patient to the exclusion of any intelligent or sympathetic instruction of the patient. Follow-up of delinquent patients, contacts and sources of infection is more often lacking than not, and where it exists it is too often perfunctory, unsympathetic and irritating. Many of the clinics are operated by private hospitals without the least support or even attention from the local health officials, although syphilis is a major communicable disease.

Demand for public information concerning syphilis comes from so few, scattered individuals that almost without exception newspaper editors can safely lean back in their chairs and get away with the fatuous argument that since their reading public must be protected from the unpleasant, they cannot print anything about so indelicate a subject as the "social diseases."

The idealist, sitting safely at his desk, insists that there is no reason why syphilis should not be managed exactly as any other communicable disease. He argues that one needs only to remember that syphilis is a communicable disease and to forget its moral implications, which, in many cases, do not apply. But the health officer who must ring the delinquent patient's doorbell without arousing the curiosity of the family, or who has just advised an examination to an indignant "source of infection," discovers that a natural human desire to avoid discovery of sex irregularity is not so easily brushed aside by an idealistic wave of the hand.

There are excellent reasons why the official program for the control of syphilis should not be as broad as the whole field of social hygiene. Syphilis is but one product of social and sexual ignorance and family maladjustment. If syphilis were to cease to exist tomorrow there would still remain the need for repressing prostitution, for safeguarding morals, for solving the problems of illegitimacy, for providing adequate recreational outlet for youthful energy, and for improving family relationship. Social hygienists have entered the lists against syphilis, first, to set the example to the official agency and second because the more concretely measurable and more immediately remediable part of their problem happens to be communicable disease. The health department which attempts to control syphilis by solving

the fundamental problems of social conduct will not only dissipate its energies to the point of ineffectual thinness, but will soon become discouraged at the slow progress which is being made. It would be as simple to control diphtheria by attempting so to adjust social relationships that the upper respiratory discharges of one person could not possibly reach the upper respiratory tract of another. The control of syphilis is not in any sense dependent upon a social revolution or reconstruction, as is demonstrated in some of the smaller European countries where it is rapidly being accomplished. While the official health agency may well participate in, and give support to, the broader program, its first responsibility is that of applying what is known about syphilis as a disease to its control as a disease.

Among the more important parts of such a program are epidemiology, medical care, public education, and health administration. Underlying these, and essential to the authority of the health department to proceed with its program, is the law.

Almost every attempt at arbitrary law enforcement only adds to the evidence of its futility. Syphilis is easily hidden and easily driven to cover. It is not, like typhoid, an acute and promptly incapacitating disease, nor like smallpox both acute and visible. In most communicable diseases the doctor is called to the home. The name and address of the patient are readily obtained. Isolation and quarantine follow immediately and continue throughout the duration of the disease. The neighborhood is aware of the illness and demands rigid adherence to the regulations. The time factor is short. There is no public disgrace associated with having the disease.

The patient with early syphilis is rarely sick enough to call the doctor; he goes to the doctor's office. In Massachusetts, nearly 25 per cent go to out-of-town physicians for treatment. If syphilis is suspected, a false name and address may be given. There is no isolation or quarantine. The disease is readily hidden from even the most intimate members of the patient's immediate family and there is usually adequate personal desire to keep it hidden. If the physician has failed to instruct the patient, nobody knows it. Adequate treatment requires months and years and the cost is often excessive. If the patient stops treatment the physician rarely reports the fact, and if he does the chances are equal that the patient may or may not be found. It is almost inconceivable that the time will ever come when a person will openly admit his infection and allow the authorities publicly to supervise his conduct and his treatment until he is no longer dangerous.

Any law or regulation, therefore, which attempts to force the syphilitic into the open will succeed only in driving him to the cover

of the drug store, the charlatan, the unscrupulous physician or to no treatment at all. Treatment cannot be made compulsory for the patient who declines to be discovered, or who, feeling the heel of authority about to descend, decides to lose himself under a false name or a changed address. Compulsion must be reserved for the relatively few who are feebleminded, vicious, or criminal exactly as in tuberculosis. Even then, whenever possible, the direct action should be aimed at the antisocial behavior rather than at the diseased condition of the patient.

Further, there is no method by which the patient's conduct may be supervised outside the physician's office or the clinic, and while regular treatment shortens the period of open communicability there are innumerable instances of exposure to infection by a patient under treatment. The isolation of every patient with syphilis until he can under no circumstances transmit the disease is economically impossible even conceding that the patient, knowing that he would be isolated, would permit his infection to become known.

The control of syphilis, therefore, must depend upon the extent to which the patient can be trusted. How well he can be trusted depends a great deal upon how carefully he has been instructed. If our clinics almost invariably neglect this most important matter, what must the situation be in the busy, unsympathetic and often therapeutically ignorant doctor's office!

Even in the matter of reporting, compulsion has little success, since it is easy for the uncoöperative physician to deny having made the diagnosis, and difficult to persuade the patient to testify at any hearing as to his condition. A few months ago it was discovered that several physicians had failed to report a single case of gonorrhea although they had received several reports of positive smears from our state laboratory. Letters were written suggesting that the cases be reported. Later investigation disclosed, not improved reporting, but termination of the use of the laboratory.

A storm of protest followed a regulation requiring that certain printed instructions be given by the physician to every patient with syphilis. Some of this was justified, for none of the available literature suits every type of case. When the regulation was removed and the literature simply offered to the physician by way of sample copies mailed to each one of them, the demand for it was both prompt and general. How many states which order physicians to give their patients these printed instructions have any evidence that the regulation is generally obeyed? There can be too much arbitrary telling the physician what he must do and too little of letting him work out the

problem, as an intelligent individual, with the health officer. The thoughtful health officer is more interested in results slowly but surely achieved than in the empty ring of his "billy" on the midnight air.

Authority, then, should be given to health officers to make epidemiological studies and to develop a program for the control of syphilis. Resources should be given health officers to provide services, aid clinics, maintain hospital beds, and make adequate diagnostic and therapeutic care available. The regulations of the boards of health should define the manner in which these services may best be utilized, but should not be so irritating and so arbitrarily enforced that they defeat their purpose. There has been little of compulsion in the control of tuberculosis. Progress in the solution of that problem has been almost directly in proportion to the number and quality of the services which have been made freely available to both the physician and the tuberculous.

Epidemiology is the bookkeeping of public health. Until the reporting of syphilis becomes more nearly complete it will be difficult to measure the whole length and breadth of progress, but generations of public and medical prejudice will not be overcome by the overnight decision of the health officer to have syphilis reported. There is no need to wait for more evidence before proceeding with a program. It is picayunish so to insist upon rule-of-thumb administrative procedures that the main object is defeated.

Among the first things necessary to improve reporting is to modify the cumbersome and complicated reporting systems. One health department has forms as large as business correspondence stationery. It would take 10 or 15 minutes to fill one out completely and intelligently. The 16- or 20-page book of detailed regulations accompanying the forms would puzzle an expert if he had time to read it. Another has no less than 11 forms to be used for reporting this or that. The physician would be remarkable who even knew he had all of them, let alone how and when to use them. The minimum number of forms in current use seems to be 5; 1 each for gonorrhea, syphilis, 1 reporting a delinquent patient, notifying a former physician of the patient's change of medical adviser, and reporting the source of the patient's infection. Is it any wonder that the average physician, surrounded on all sides by birth certificates, death certificates, liquor prescriptions, narcotic blanks, questionnaires, other communicable disease reports, unpaid bills and income tax reports, balks at this further complication which, so far as he can see, serves no other purpose than telling the health officer something about which nothing is ever done?

In Massachusetts, 1 form has been devised to serve every purpose,

and business reply envelopes are provided so that there is no expense to the physician for postage. This simplification of the reporting system was responsible in no small part for an increase from less than 6,000 to more than 11,000 reports in a single year.

There is no essential administrative value in requiring the name of the coöperative patient. Nothing is done about it except possibly to discount duplicate reports. Requiring the name discourages reporting and encourages the use of aliases. Let the report serve simply for the collection of the maximum of essential epidemiological data, which can be obtained with a minimum of irritating inconvenience to the cooperating physician.

Under the subject of medical care there are to be considered:

1. Adequate treatment of the patient in the physician's office and in the clinic
2. Follow-up of the delinquent patient, contacts, and the source of infection

Adequate treatment for the patient involves the undergraduate and postgraduate training of the physician in anti-syphilitic therapy and public health procedure, the provision of Wassermann laboratory service and dark-field examination, a readily available supply at least of arsenicals for every patient, adequate free or part-pay clinic service at convenient hours and with sufficient personnel to give the necessary time to the patient. It is necessary to educate the public to suspect every promiscuous intercourse as being a contact with infection, to realize the importance of adequate treatment begun soon after infection, and the wisdom of premarital examination and routine Wassermann examination in every pregnancy.

Physicians are not entirely to blame for their general unfamiliarity with anti-syphilitic therapy, but the medical profession can correct the situation by insisting upon adequate instruction, in the future, in the medical schools. For those already out of school, other provision must be made, since specialists will never adequately cover the ground. Demonstration clinics, talks to medical societies and hospital staffs, postgraduate clinic courses, brief, up-to-date texts on the management of syphilis, constant reminders, in one way or another, of the communicability of the disease, all help to keep the subject alive. The more rapidly the public is taught what to expect in the way of anti-syphilitic treatment, the more rapidly will physicians have to increase their knowledge and improve their technic.

In Massachusetts, one trained member of the department is making office-to-office visits to every physician in the state, calling attention to services, discussing cases, talking treatment, listening to sug-

gestions as to how services may be improved, accepting complaints, and in every way possible attempting to interest the physician and discover how he can be made a more willing and better equipped partner with the department in its program. In this we are following the example of Dr. Coombs and the Maine Health Department.

Every state should have adequate and accurate Wassermann laboratory service, freely available. Dark-field examination service is more difficult to provide, for no method has been devised which obviates sending the patient to the laboratory; yet this procedure is the only one upon which a diagnosis of primary sero-negative syphilis can be made, and treatment begun in this stage leads in almost every case to cure. No clinic should be without dark-field equipment and a competent observer, and it should serve as the diagnostic center for its area.

There is some debate as to how far the state or the local board of health should go toward supplying all the medication necessary, in early syphilis at least. Some board of health clinics treat patients only during the openly communicable stage. This is, of course, worse than useless, since inadequate treatment leads to relapse and even greater communicability. Some states provide arsenicals only for the treatment of the indigent. This results in red tape and the neglect of those who decline to be officially recorded as paupers. Certainly there can be no good reason why the arsenicals, which are the chief sterilizing agents, should not be made as freely available to any physician for any patient as is antitoxin for diphtheria. Logically, either bismuth or mercury should also be provided, since arsenicals cannot be given continuously, and these other products are essential to adequate treatment if the disease is to be kept non-communicable. However, if arsenicals are available treatment may be begun and there will be some time in which to make whatever economic adjustment may be necessary for its continuation.

There is much to be desired both as to the number of clinics which should be maintained and the quality of their services. Unfortunately it is usually impossible to operate a clinic successfully in a community of less than 30,000 or 40,000 people because of public curiosity. How to provide this service for large areas composed of small cities and towns is still very much a problem. At any rate, there is ample room for improvement in the clinics that are now being operated. There can be little comfort in being forced by economic circumstances to sit with a hundred others for an hour or more, on hard benches, in a barren waiting room, with nothing to read or do, until an impersonal clerk calls out a number, becomes irritated if you have dozed and are slow

to respond, then crowd into line with a dozen others in a small room, let down your trousers or lift up your skirts as the case may be, to receive, almost in full view of the rest, a jab in the buttocks, and be dismissed with the routine admonition, "come back next week." Not a smile, not a kindly word of explanation to set your fears at rest. No one to tell you whether next week's treatment is the last or only one more in a life-long series. A mysterious business, a barren place, an impersonal, repelling atmosphere, and a bawling out if you cannot see the sense of attending any longer. If physicians' offices were managed in this manner, there would be no patients in them. Yet we expect by these methods to control a dangerous communicable disease in a patient on whom our only hold is his confidence in us and his trustworthiness.

Adequate treatment cannot be defined, however, as that which the patient receives after he has come to medical attention, unless he has come in time. No matter how thoroughly competent physicians become, nor how luxurious and complete our clinic service may be made, so long as 2 out of every 3 patients begin treatment only after a year or more has passed since infection, there can be little adequate treatment; and since the disease is most highly communicable during the first year, there can be no progress in its control. Thus there must be public education.

The follow-up of the delinquent patient is a serious problem. It is almost impossible to persuade physicians to report the delinquent. This may be justifiable in small towns where the report of a name to the local board of health may prove extremely embarrassing to the patient. It can also be appreciated that the physician is almost certain to lose permanently any patient whom he causes to be visited by the health officer. It has already been pointed out that half the patients who are reported cannot be found. After listening to the accounts of some health officers of their "capture" of some delinquent patient and their window-peeping methods on the trail of a source of infection, I have lost some of my faith in the advisability of turning this delicate problem over to untrained and insensitive persons. They are apt to threaten where only tact is needed; they may accuse when only sympathetic understanding will clear the path to the doctor's office; they sometimes ask the unsuspecting wife why the husband has neglected to go to the clinic; they have the common belief that syphilis is synonymous with sin and they become police officers rather than health officers.

It is a matter of record that a competent, sympathetic medical social worker in a clinic not only will reduce delinquency to a minimum,

but will secure the examination of many of the family contacts and a large proportion of the identifiable sources of infection. I doubt that, except in rare instances, any health officer could do anything for or with a delinquent that a good medical social worker has had to give up. If it is worth while to provide good medical social service in clinics, why not apply the principle to the whole problem of the delinquent patient?

Suppose the reporting of these patients and sources of infection be entirely discontinued, and the physician be permitted instead to call for the service of a medical social worker. Communicable disease nurses and tuberculosis nurses are now employed by most boards of health—why not a specially trained nurse to visit syphilis patients? But instead of making her visit one of public record, let her make the doctor's office her starting point and let her forget the identity of the patient when she has reported back. The principle is exactly the same, only the route taken is different and the training more specialized. The patient cannot resent the tactful, private approach of a woman representing, not the board of health, but the doctor, who explains why treatment may not safely be neglected. The physician has no cause for complaint at the return of his patients, even though a few, unable to pay his fee, may have been referred, with his permission, to a clinic. The board of health will have established no new type of service since it already visits in case of other communicable diseases, and its object, to keep patients under treatment, will be accomplished far more satisfactorily than would be possible by any other method. True, the patient's name does not become official property, but that may be dispensed with to no administrative disadvantage. This method of follow-up has been tried in some 50 cases in one physician's practice in Massachusetts, to the complete satisfaction of everybody.

We know the cause and mode of spread of syphilis. We have the means for its diagnosis. We have an effective therapeutic agent. We know enough about its epidemiology to warrant unusual effort for its control. We can see that it cannot be controlled by rule-of-thumb procedures. Let us, then, shape our program to our problem and stop begging the problem to be reasonable.

Lame English

FIND me a man whose syntax is snarled and I'll show you a man whose thinking is also snarled. Lame English runs neck and neck with spavined logic.

MENCKEN

When the Doctor Prescribes Books*

CATHERINE POYAS WALKER

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WHEN the doctor prescribes books, the hospital library, whether owned by the hospital, supplied by the city libraries, or by the federal or state governments, must stand ready to fill the prescription. While to the casual observer the books carried to the patient may appear to be given out in an almost haphazard manner, there is no greater care taken by librarians than toward eliminating the wrong ones from hospital libraries, and insuring the right book for the right patient, in order to bring about the therapeutic value of well chosen reading.

That the selection of books for their curative value is necessary in hospital libraries would seem apparent. It is the purpose of many of the hospital librarians to cumulate and formulate what they have learned from their individual experiences in order to eliminate difficulties for others. As a suggestion, it would seem advisable that they turn their attention toward the formulation of a mental and phychological symptomatology of various diseases, which would be of enormous value in hospital libraries, while in them the physical characteristics of illnesses are of lesser importance, besides being readily available from the hospital records on each patient.

Doctors in charge frequently help librarians by describing individual mental symptoms of particular patients, which are of the utmost value in prescribing suitable books, and these specific instances would seem to prove the need for the general psychological symptomatology. This would be to the hospital library what the general symptomatology is to the physician. Individual application in every case would remain necessary, for the librarian as well as the doctor.

The large public library, with its great demands from readers of every character, provided it has a fairly adequate book fund, presents few problems in book selection, since it buys practically every book published, leaving the selection to the discrimination and interests of the reader, with the advice of the staff when needed.

The hospital library, as a rule, has a very limited book fund, which

* A Psychological Symptomatology Advocated to aid in Bibliotherapy.

may, at first glance, appear reasonably adequate, as a hospital contains but a small number of readers in comparison with that of a great public library; yet, every type of reader belonging to a large public library is likely to become one of the readers in the hospital library. Consequently, upon a small book fund, the hospital library must attempt to furnish interest for everyone, from the patient whose daily labors provide no time for reading except when confined to bed, to the omnivorous reader who keeps up with the latest book criticisms and demands the latest selections of the various book clubs, or who even considers those out-dated. The enforced idleness of hospitalization frequently makes readers out of patients who, outside the hospital, would prefer other occupations and diversions.

Interest is the first requisite in all curative reading. No patient will open his eyes and quickly swallow a sugar-coated book because advised of its remedial value. Indeed, unless a book creates interest, it is greatly to be questioned whether it will have therapeutic qualities —unless, perchance, irritation were what the doctor prescribed. While the seldom-reading patient is probably easily satisfied with material at hand, the voracious and sophisticated reader, accustomed to large collections of books, and frequently resenting suggestions, often presents a more serious problem in hospital libraries, usually necessarily small.

There are several general aspects to be considered in book selection for the hospital library. A book which may be helpful, or at least harmless, in one ward, may be very harmful in another. Then there is a general psychological symptomatology to be taken into consideration before prescribing a book. There are obvious, generally well known, blanket rules for book selection in various hospitals; for instance, in the penitentiary hospitals, mystery, crime, and detective stories are usually banned; in mental hospitals, the mere mention of the word "crazy," however apparently harmless its context, may have an unfortunate effect; tuberculous patients should have cheerful books; and so forth. Concerning the books themselves, in general, those dwelling upon, and describing disease, ill or deformed characters, must be avoided; to some patients the subject of finances is one of great matter, and even humorous accounts of attempts to secure money may not seem amusing to them. One man's humor is another man's grief, might well be the epigram for the hospital librarian regarding so-called humorous books, and the same caution applies to the "cheerful" books—there is usually nothing more annoying to patients than an enforcedly and persistently cheerful book or person. The old-fashioned novel demanded by some readers will not be tolerated by

others. On the other hand, the hospital might find its curative purpose rather defeated if the librarian gave its patients certain modern novels, the trend of which would seem to be the utter futility of living. The therapeutic value of the writings of many of the young sophisticates who believe that by intuition they have grasped new wisdom unsuspected by the ages, is also questionable. A book with a persistent dwelling on sex is not usually conducive to good health. Introspective books, those dealing with family squabbles, marital difficulties, suicides, gruesome and horrible details, problems of various sorts, and religion are dangerous topics to present to some readers, who may be shut up in one small room for an indefinite period. For instance, one very ill patient to whom a kind hearted friend gave a copy of "Dracula," suffered from increased temperature and sleeplessness after reading it.

The casual reading of a book is not sufficient to determine its fitness for a hospital. For instance, a covered-wagon novel of the western march of a family and caravan appeared to be excellent hospital material, being well told, with graphic descriptions of outdoor life on the trail, hardships courageously met, of sufficiently probable, yet not too gruesome relations with the Indians; but suddenly toward the end the author described the birth of a baby. While, for hospital readers, there is nothing harmful in that of itself, and there was no undue dwelling upon clinical details, yet the fact that anxiety over a missing husband, and lack of care to the mother, made her become "addled," would make this book dubious reading for a maternity ward, or a psychoneurotic patient, and would quite overcome the pleasant outdoor interest of the early chapters. Even the facts that the husband eventually returned, and the wife's mind became restored might not counteract the disagreeable episodes; yet for a reader not in a hospital, this is an interesting story.

Another recent novel dwells upon the problems of the parents of a dwarf, again, scarcely suitable for most hospital patients. It is to be doubted if Willa Cather's *Shadows on the Rock*, though it will be requested by many patients, will be a good prescription, on account of the deformities described, one resulting from the suppuration of a wound due to neglect; the Indian and prison tortures, and similar horrors of prisons and man's inhumanity to man, the very excellence of the writing but serves to make more graphic.

Censorship is abhorent in thought to most librarians; yet it would seem—with the object of restoring patients as rapidly as possible, through the entertainment, recreation and fellowship of books—even the general hospital library books must be selected with the greatest

care, and that in addition, the hospital librarian must give individual diagnosis to the reading prescription, and thought, not only to the general symptomatology and to the causes responsible for it, but also to the particular needs and fancies of each patient, preventing, as does the pharmacist, the indiscriminate use of what might be poison in some instances, yet have therapeutic value in others. The ideal situation is not to restrict the books placed in the hospital library, but to limit their use to patients.

It cannot be overemphasized that the proposed psychological symptomatology would no more relieve the librarian's responsibility from individual reading diagnosis for each patient, than does a general symptomatology relieve a physician from the consideration of each patient. Yet as a physician can use the general as a basis from which to particularize, so it is believed might the hospital librarian find the advocated psychological symptomatology a great help, when, with the aid of hospital librarians, psychiatrists, psychologists, mental hygienists, and others interested, such a book can be compiled.

In the case of the general hospitals the book might be prepared to answer such questions as: Does angina pectoris, for instance, require a different mental diet of books from some other "heart diseases"? Are the patients suffering from it not to be given exciting detective novels, with gory detailed accounts of murders, or, if the patient demands them, should the librarian furnish such reading rather than try to dissuade him or offer substitutes?

If a patient with Bright's disease is irritable, does it go with the disease, or is it peculiar to the particular patient? If it goes with the disease, is the irritation continuous or spasmodic? Is there hope of cheerful books proving a corrective for a depressed outlook?

If a certain amount of irritation naturally accompanies a physical disease of a certain name, the librarian might have a more scientific basis of knowing when to be slightly insistent in offering books to a new patient who gruffly refuses to take anything offered, and appears to have a general grouch against everything. Some patients really want to be urged a little. Some are not sure they will not have to pay for the books. Naturally, the last object the librarian has is to annoy the patients in any way whatsoever, but the selections might be slightly more scientific than those now made on just intuition, tact, or general guess work.

Abnormal psychology is not needed for general patients who are not really abnormal, but frequently conditioned mentally by physical states requiring a long shut-in period. Some short-cut is needed for hospital librarians to find out the mental states that accompany the

various diseases, without studying the physical conditions involved, and without appealing to overworked doctors to help them out.

In the case of the mental hospitals, the selection of a book, representing a series of mental stimulus involving various reactions, means an almost overwhelming amount of individual knowledge concerning the problems of a particular patient and the causes of his condition—if they can be learned—to be sure that the effect will be beneficial. Consultation with the doctors in charge is frequently, and almost invariably necessary. The mental hospitals require librarians as specially trained as psychiatrists rather than "family physicians." Yet what is to provide that special training for librarians who cannot in most instances become also psychiatrists?

In any hospital, mental or general, the human element, the individual, would always have to be considered—whether his hatreds were ghosts or finances, family problems, too much mother-in-law, or whatnot; whether he prefers golf or baseball, art or engineering, or whether all professional reminders are taboo during illness; or in the case of a woman, whether she prefers a sweet love story, or a problem novel, or it takes something very "sophisticated" to arouse her interest, or if any mention of sentiment is to be avoided altogether.

As a basis upon which to train all hospital librarians, as a textbook for their training, and as their reference foundation from which to start their diagnoses to aid their patients, in a general hospital and even in a mental hospital, it is believed that the proposed psychological symptomatology might provide that foundation and generalization from which any hospital librarian might work toward individual understanding of the book needs of each of her patients.

The Greatest of These is Health

WHATEVER else might change, it remained true that among the assets on which we had to rely in the new advance there was none so rich as the health of the nation. Economy was one thing, parsimony another. Economy enriched; parsimony might impoverish. Economy demanded the development of national assets so that each might give the greatest return to the nation. The return on no asset of the nation could be more increased by development than the return on the asset of health. The common health was the very foundation on which all fresh effort must be built, the base from which all advance must proceed. "Health, liberty, and wealth, and the greatest of these is health; for if a nation has that, the others will be added to it."—Sir Hilton Young, Minister of Health, *Med. Off.*, Nov. 28, 1931, p. 234.

EDITORIAL SECTION

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SIR DAVID BRUCE

NEWS of the death of Sir David Bruce comes to us from abroad. Born in Australia, he was educated at Edinburgh University, and became a member of the Army Medical Service in 1883. From 1889 to 1894, he was Assistant Professor of Pathology at the Army Medical School, and later, for 4 years he edited the *Journal of the Royal Army Medical Corps*.

Sir David Bruce was one of the early workers in tropical medicine, and is justly regarded as one of the founders of that branch of our science. His first work which brought him into notice was the discovery of the cause of Malta fever, which produced much invalidism in the naval forces of England in the Mediterranean and great loss of money. He showed that it was carried by the goat through the milk, and discovered the germ known as the *Micrococcus melitensis*. He made investigations of nagana and tsetse fly disease, showing that they were one and the same, due to a trypanosome which was carried by the tsetse fly. This is believed to be the first instance in which an insect was shown to be the carrier of a disease producing protozoan parasite.

The Royal Society in 1903 sent him to Uganda to study trypanosomiasis in that stricken country. Castellani had shown that the trypanosome was found in the spinal fluid in cases of sleeping sickness. Bruce went further and proved that the organism was the cause of the disease, and later that the *Glossina palpalis* was the carrier of this

particular trypanosome, the distribution of the disease corresponding with that of the fly.

During the World War he was chairman of the committee on tetanus, and later chairman of that for the study of trench fever. Many honors were conferred on him by universities and societies, and it will be remembered that the trypanosome of nagana bears his name.

His passing at the age of 74 takes away one of the founders of the science of tropical medicine.

DR. PETER H. BRYCE

THE death of Dr. Peter H. Bryce, of Ottawa, Canada, will sadden every member of the Association, removing from us, as it does, one of our oldest members—he joined the Association in 1883. He became President in 1900, after having served on various committees and held other positions of usefulness and honor in our Association. In recognition of his services to the Association, he was elected an Honorary Fellow in 1922.

Dr. Bryce was honored and beloved by all who knew him, genial in character, honest, and outspoken. A long career of usefulness in his native country in various positions led to a pension soon after the World War.

The newspapers tell us that he died on board ship while seeking a rest in a warmer climate. A fuller history of his activities will be given in our next issue. "Requiescat in pace" will be the earnest prayer of all those who were fortunate enough to know him.

VOLUNTARY EUTHANASIA

THE question of euthanasia has been discussed for many years. There are many things in it which appeal to everyone, but so many objections to it, legal and otherwise, that it has not been generally accepted.

The newly elected President of the Society of Medical Officers of Health of England gave as his Presidential Address[1] a most interesting and scholarly discussion in which he advocated the legalization of voluntary euthanasia, and outlined the essential provisions for such an act. His proposition is that individuals of proper age and mentality who are suffering from incurable and fatal diseases which entail a slow and painful death should be allowed to substitute a quick and painless one, after complying with certain conditions. He regards this not only as an act of mercy, but "as a matter of elementary human right."

His discussion of this question shows much research and clear reasoning, taking up, in turn, the fear of death, the legality of suicide, the Christian attitude toward it, ethical and practical objections. Many readers will doubtless be surprised to learn of the attitude of prominent churchmen in the past, and one, Canon Green, makes a statement which is hard to answer: "One might, of course, argue that as God alone confers life, God alone may decree its end. That argument, however, is impossible while we permit war and capital punishment. . . . I have found it impossible to discover any really conclusive argument against suicide under due restrictions."

Recently, Dean Inge, who is well known for his writings on religious and ethical subjects, has shown a distinctly sympathetic attitude toward euthanasia, pointing out the anomaly of putting a horse or dog out of its misery, but undergoing the danger of hanging for helping a patient suffering with cancer with an overdose of morphine. He closes, however, with the statement that if he should ever suffer from such a disease he hopes that he would have patience to await the end.

It is generally held that suicide is an act of moral cowardice, and in many cases this is doubtless true; a father, for example, leaving a dependent wife and children without means of support. It has been condemned in many countries—in fact it is a criminal act in some, and an unsuccessful attempt often leads one into the courts for punishment, which has included the confiscation of property. Further, suicides have been denied Christian burial as well as interment in consecrated ground. For centuries suicides were buried at crossroads with a stake driven through the body, and this was discontinued in England only 50 years ago.

The religious side is based largely on the command "Thou shalt not kill," which has been revised to read "Thou shalt do no murder." The Fathers of the Church interpreted the original version to include one's self in the order against killing, and the early Christians took the view "it was desertion of a sacred trust without permission of God."

Euthanasia has very properly been objected to on legal grounds as opening the door for murder. Voluntary euthanasia as outlined by Dr. Millard would apparently be free from this objection. Cases arise frequently in which the hearts of the family of a sufferer are torn by conflicting emotions. In this country a short time ago we had the case of a father who, feeling that his end was near, put to death his incompetent daughter to whom he had devoted his life, his object being to make sure that she would not suffer from neglect at the hands of those to whom she was not dear. The current papers are carrying

the story of a woman in Copenhagen who deliberately overdosed her mother, Baroness Von Dueben. The judge in this case is said to have viewed the case leniently, being convinced that there was no malice and that the action of the daughter was founded in love and the desire to end hopeless suffering.

On the other hand, in certain countries and under certain conditions, suicide is considered an act worthy of commendation. It has always been regarded as praiseworthy for soldiers and sailors to die rather than surrender, and even to put themselves to death to avoid capture. In China it is honorable for women to kill themselves at the death of their husbands, and in Japan suicide may be legally done to avoid disgrace, to restore honor, as a matter of protest, and from loyalty to a superior. Many will remember the death by hara-kiri of one of Japan's foremost statesmen only a few years ago.

Doubtless the Presidential Address of Dr. Millard will cause much discussion and bring protests. The great majority of the people of the western nations, at least, are not ready for such an innovation, but no one can read it without learning much, and for many we believe that it will help to do away with the practically universal fear of death, which the late Professor Metchnikoff held was given to us for the preservation of the species.

"The great task of Medicine is to prevent disease; and failing that, to cure disease. If it fails in both, science, at least, enables us to shorten the sufferings caused by disease."

REFERENCE

1. The Legalisation of Voluntary Euthanasia, *Pub. Health*, Nov., 1931, p. 39.

ASSOCIATION NEWS

NEW MEMBERS

The following list includes applicants who have been approved for membership in the A. P. H. A. by the Sub-Committee on Eligibility. These new members have requested affiliation with the sections indicated, and action by the Section Council will follow.

Health Officers Section

Manuel R. Benitez, M.D., Dept. of Health, San Juan, P. R., Assistant Director, Bureau of Communicable Diseases

Ramon B. Berdecia, M.D., Box 1266, San Juan, P. R., General Medical Inspector

F. R. Dew, M.D., St. Clairsville, O., Health Commissioner

Cesar Dominguez, M.D., P. O. Box 92, Humacao, P. R., Medical Officer

T. Paul Haney, Jr., M.D., McComb, Miss., Director, Pike County Health Dept.

Dr. M. R. Kinde, Hastings, Mich., County Health Officer

A. D. Park, M.D., Hartford, Ky., Director, Ohio County Health Unit

John H. Williams, M.D., Suites 2 & 3, Neely Block, Muncie, Ind., City Health Officer

Laboratory Section

Carl A. Nowak, Nowak Chemical Labs., 1327 Chemical Bldg., St. Louis, Mo., Laboratory worker

Vital Statistics Section

Elliott H. Pennell, U. S. Public Health Service, Washington, D. C., Assistant Statistician

Manuel A. Perez, Bur. of Vital Statistics, Dept. of Health, San Juan, P. R., Chief

Public Health Engineering Section

Herman G. Baity, Sc.D., Dean, School of Engineering, Univ. of North Carolina, Chapel Hill, N. C., Professor of Sanitary and Municipal Engr.

Pedro M. Otero, Dept. of Health, San Juan, P. R., Engineer, Bur. of Malaria Control

Ralph M. Palmer, 10 E. 40th St., New York, N. Y., Chemical Engineer

Walter Spencer, S. Jersey Assn. of Water Supts., 7220 Walnut Ave., Merchantville, N. J., Asst. Supt., Merchantville-Pennsauken Water Comm.

Child Hygiene Section

Marta Robert de Romeu, M.D., Parque St. 91½, Santurce, P. R., Director, Bur. of Child Hygiene

Public Health Education Section

Mildred I. Dillistin, City Hall, Middletown, N. Y., Asst. to Health Officer

Marie F. Kirwan, 245 E. 21st St., New York, N. Y., Extension Secty., New York State Comm. on Tuberculosis and Public Health.

Public Health Nursing Section

Helen S. Orth, R.N., Mt. Vernon, Ky., County Health Nurse

Bosse B. Randle, R.N., Bd. of Ed., 143 Bostwick, N. E., Grand Rapids, Mich., Supv. of Nurses

Epidemiology Section

Abel de Juan, Dept. of Health, San Juan, P. R., Dir. Bur. of Comm. Disease

Unaffiliated

Antonio Arbona, M.D., P. O. Box 221, San Juan, P. R., Medical Officer, Bur. of Malaria Control

Jose R. Pastor, M.D., Dept. of Health, San Juan, P. R., Director, Bur. of Tuberculosis

DECEASED MEMBERS

J. S. Fulton, M.D., Baltimore, Md., Elected Member 1915, Fellow 1923

P. Martin Keller, M.D., Glendale, Calif., Elected Member 1929, Fellow 1931

Professor Herbert H. Waite, Lincoln, Nebr., Elected Member 1913, Fellow 1923

Andrew A. Cairns, M.D., Philadelphia, Pa., Elected Member 1914

Homer V. Knouse, Omaha, Nebr., Elected Member 1925

TRAINING AND PERSONNEL

WITH the full support of the present administration of the Association, your Committee on Training and Personnel is undertaking an active program for the improvement of tenure and the further professionalizing of public health work. Through the use of this space, which has been made available to the committee by the Editor of the JOURNAL, we hope to keep you informed concerning the plans and activities of the committee and to give you news of interesting developments in the field. Constructive suggestions from fellows and members of the Association, sent to the committee at the New York office, will always be welcome.

The following statement is taken from a program of work recently approved by the committee, and presents the point of view with which the task is being approached. Specific plans and activities will be presented in subsequent issues.

PRINCIPLES AND PROCEDURE

A. The activities of the Association must be based upon the fact that public health is a distinct profession.

The mere enumeration of specific public health activities such as epidemiology, vital statistics, public health laboratory procedures, water purification, and food sanitation, makes it obvious that both the administrator and the technical specialists in the health department use a body of knowledge not completely presented in the training for any of the professions most akin to public health. Further recognition is given to this fact, so far as medicine is concerned, in the creation of schools of public health quite separate from the medical schools in several universities. The fact that sanitary and public health engineering are distinct from civil engineering is recognized by engineering schools which have established specific courses in this field. Similarly special programs of training have been set up for other specialists in public health. Until we can procure a recognition of the importance of special training (or experience) we cannot hope to secure permanency of tenure for the present workers or the appointment of trained workers when vacancies occur.

B. The first interest of the Association is the tenure of office for people in the service at present.

To be sure, we have in our various groups of public health workers at present people with widely diverse training and with varying degrees of efficiency. We must think of all situations and practicable training, not merely of the most important positions and of ideal training.

The people who are in service represent the profession as it exists today. Successful service is an evidence of at least some degree of proficiency. In every field, especially the field of public health administration, there will be difference of opinion as to what ideal training should be, but to start any program which would throw discredit upon present members of the profession who are giving satisfactory service would arouse discord within our own Association, confuse the general public, and retard the whole program.

It is only fair that the people who have gone into this field in the best way available to them and in the absence of specific guidance and who have become proficient through self-education and experience should have their tenure of office supported by the profession. We must not undervalue experience. Not all facts are learned in the classroom,

by any means. We must not, at this time, make a fetish of degrees, to such an extent that we draw sharp lines between present public health workers in service upon the basis of presence or absence of specific public health degrees.

If we are to succeed in improving public health personnel we must stand solidly behind the principle of continued tenure of office for every member of our Association now in professional work. We must begin where we are, start with minimum standards, and work through evolution rather than by revolution.

C. We must stand solidly for the principle that new appointments in public health positions should be made from the group of individuals who are trained in public health either by study or experience, or both.

We will try to keep the present personnel in office and eliminate displacements for political rather than professional reasons. We will try to induce public opinion and appointing authorities to insist upon replacements with properly trained people when vacancies occur in the natural course of events. In order to do this we will have to define some standards of training and experience and accumulate the list of individuals who meet these standards.

D. We should recognize experience as well as training in setting up these first standards.

As indicated above, we must not set up standards which disregard experience and give credit only to training secured through study for a particular public health degree.

LETTER FROM GREAT BRITAIN

VACCINATION—COMPULSORY OR VOLUNTARY?

OFF and on for a number of years, particularly since the effects of the "conscientious objection" clauses have made themselves felt, there has been talk among medical officers of health about the advisability of repealing the legislation relating to compulsory vaccination and placing the system upon a voluntary basis.

The transference of the administration of the laws dealing with the subject to the local health authorities following the abolition of the boards of guardians by the Local Government Act, and the issue of the now well known "Review of Certain Present Aspects of Smallpox Prevention in relation particularly to the Vaccination Acts, 1867–1907" by the Ministry of Health, rather brought things to a head. So much so, indeed, that the hunt appears to be fully up, with everybody clamoring at once for an immediate abandonment of the compulsory system and the substitution of voluntaryism.

In a report supporting this demand, prepared by the Medical Officer of Health of Brighton—where Sir Arthur Newsholme officiated for a number of years—and adopted and circulated by the local council, it is pointed out that under compulsion only about 50 per cent of the babies born are vaccinated and that, in any case, judging from the practical disappearance of a death rate from smallpox, it is a disease hardly worth worrying about.

As a further advantage it is claimed that, shorn of compulsion, vaccination would cost the country much less; a saving of about $500,000 per annum, in fact, is promised. Probably it is this possibility that will influence local health bodies to join in a request to the Minister of Health to present a bill in Parliament for the repeal of the Vac-

cination Acts. The Society of Medical Officers of Health, who, with the Association of County Medical Officers of Health, propose to discuss the question fully, doubtless will consider this point also, in addition to many others of practical and administrative importance, before they make any recommendation to the Minister. That the Minister will decide off-hand to go for abolition, even with the Brighton and other reports in favor before him, is improbable.

The British system of government does not welcome wide and quick changes, and unless he has behind him a Royal Commission or at least a Departmental Committee, it is unlikely that the Minister will be prepared to suggest in the first instance anything more drastic than an amendment of certain provisions of the Acts or the issue of an order that will allow of simplification of the administrative procedure.

THE ORGANIZATION OF HEALTH EDUCATION

At the fourth annual conference of the Central Council for Health Education, held at the School of Hygiene and Tropical Medicine in London toward the end of November, health officers and representatives of health authorities, insurance committees and companies, and others interested in health education had the opportunity of conferring one with the other on the subject generally and hearing experts dealing with particular aspects and matters. Prominent among the speakers was Mr. Greenwood, Minister of Health in the previous administration, who, in pressing the claims of health education, claimed that it was "one of the most important factors in improving the level of public health in the country," and that the return obtained was out of all proportion to the expenditure upon it. The object of this latter pronouncement was to allow of an appeal to health authorities and others with funds at their disposal, in their zeal for economy, to refrain from cutting down contributions to the Central Council.

As a fact, there are few organizations, so far as health propaganda and publicity are concerned, more deserving of support than the Central Council for Health Education. Formed by and at the instance of the Society of Medical Officers of Health, its own main object is economy: saving of trouble and expense to health officers and health authorities, insurance committees and approved societies (under the National Insurance Acts), insurance companies, etc., all of whom require guidance in connection with the choice of health educational organizations, material and what not.

Great Britain may not be unique in this respect, but one of the troubles, so far as health teaching is concerned, is the remarkable profusion of societies and associations, voluntary mainly, all longing to assist the official bodies in their propaganda with lecturers, leaflets, posters, cinema films, and so on. So many were these organizations and so much did they overlap, that the authorities were hard put to it to know the one from the other and the good from the bad.

The Central Council for Health Education, with the authority of the Society of Medical Officers of Health behind it, set about bringing order out of chaos; affording facilities for affiliation of the societies suitable for recognition; serving as a sign-post directing authorities, etc., to bodies appropriate for their particular purposes; advising with regard to literature and affixing their seal to suitable leaflets, pamphlets, films, etc.; keeping lists of lecturers; arranging for the loan of teaching material —films, etc.; communicating health articles to the press; and so forth.

Incidentally, one of the most useful and successful ventures of the Council is the publication of a propaganda

journal. Published under the title of *Better Health,* this journal enjoys a circulation of over 300,000 copies a month, and fulfils a most useful purpose. Another most useful function performed by the Council is in relation to the assistance given to insurance companies, committees and societies in the preparation of leaflets, and steadily greater and greater importance is coming to be attached to the seal of the Council upon health publications of various sorts. Of all the several contributions to the health service of the people by the Society of Medical Officers of Health there is none of greater value and moment than the Central Council for Health Education, and it is to be hoped that, in spite of the economy wave, funds sufficient to keep it afloat will be forthcoming.

THE PRINCE AND HOSPITAL OUT-PATIENTS

The Prince of Wales, whose interest in the work of hospitals in general, and those in London perhaps especially, is well known, has been greatly impressed by complaints made with regard to the overcrowding of out-patient (extern) departments and the length of time those seeking advice frequently are required to wait. With a view to seeing what can be done and whether in order to remedy these and other defects the departments in question should, apart from emergencies, be used only for the purposes of consultation with patients sent for second opinions or specialist treatments, his Royal Highness has formed a special committee with directions to inquire.

Lieut.-Colonel Fremantle, who has been invited to serve upon this body, may be regarded as representing the public health service thereon since, though it is now some years since he resigned his appointment as County Medical Officer of Health of Hertfordshire to enter Parliament, he has continued to maintain close touch with the Society and his fellows, acting as Member of Council and attending meetings with as great regularity as his parliamentary duties will allow.

HONORARY FELLOWS—SOCIETY OF MEDICAL OFFICERS OF HEALTH

The nomination of Surgeon-General Hugh S. Cumming of the U. S. Public Health Service, and of Dr. F. F. Russell, Medical Director, Rockefeller Foundation, to the Honorary Fellowship of the Society of Medical Officers of Health of Great Britain has appealed to the many friends and admirers of these distinguished authorities on public health and preventive medicine on this side as eminently appropriate and has afforded very real gratification. Among others nominated by the Council of the Society on this occasion were Sir George Newman, Chief Medical Officer, Ministry of Health, England and Wales; Dr. Carl Humel, President, State Department of Health, Germany; and Professor Thorvald J. M. Madsen, Director, State Serum Institute, Copenhagen, Denmark.

CHARLES PORTER, M.D.

London

PUBLIC HEALTH ADMINISTRATION

BUSINESS AND OTHER STATISTICS IN HEALTH DEPARTMENT WORK BY MACHINE TABULATION

J. L. POMEROY, M. D., F. A. P. H. A.

Los Angeles County Health Officer, Los Angeles, Calif.

IT has become of tremendous importance in modern public health work to analyze much more intensely than was formerly necessary not only the results from a professional standpoint, but to combine cost statistics with the usual record of achievement. The pressing need of economical operation, the serious problem of meeting the criticisms of various investigating bodies, particularly those representing taxpayers, and the value of detailed data in the preparation of budgets, all justify the expenditure of considerable sums of money in securing adequate cost statistics. It appears that but little attention has been paid to this problem in public health work, and the system in vogue in the Los Angeles County Health Department may be of value to other similar departments throughout the United States.

The Los Angeles County Health Department resembles in many features that of a state department or a large incorporated city. The department performs work not only for rural areas but also for 35 incorporated cities. The total population served at the present time is approximately 800,000, about equally divided between incorporated cities and unincorporated area. The work of the incorporated cities is performed through business agreements between the governing bodies of the cities and the county, and it became necessary to have very accurate statistics both as to units of work and cost, because of this contractual relationship. Needless to say, the application of these figures has been of enormous importance to the management in increasing efficiency and in revealing weaknesses. It is strongly recommended to health departments that the *Appraisal Form* of the American Public Health Association be used with a system of collecting costs and unit statistics of work.

HOLLERITH TABULATING MACHINES

In searching throughout the business world for proper machinery, it was found that the electrical tabulating machine method through the assistance of Hollerith cards fitted our needs best. Public health work covers a field of different kinds of operations through which, however, there must be close correlation and coöperation. In its actual operation, there is an infinite variety of details to be considered. It is extremely difficult by hand tabulation to devise master sheets that are capable of being easily handled due to the enormous number of different facts on each sheet. The Hollerith card, however, is capable of handling just such a situation. It is possible on an 80-column card to have as many as 800 different classifications. Furthermore, since the major operations are automatic, the chances of error are reduced to the minimum. It is also possible to go back and take off quickly data which at any time may become very important with no added expense or technical diffi-

culty. With original records this operation would not only be expensive but require a long delay. It often happens in our work that we desire additional data from the past for purposes of comparison and the Hollerith card fulfils this situation. In other words, while the entire factual data from a record may be transferred to the Hollerith card, it is possible to use only a portion for current use and still all the material is in shape that it is readily available when needed.

THE CODE

In connection with the use of the Hollerith cards, it became necessary to devise a code of symbols and numbers used to represent functions, places, and things throughout the department. Coupled with this, there have been created a number of definitions which are of great value in the education of each employee in his daily work and his knowledge of the operation of the entire department. The system can be adapted to any health department because the functions can be re-arranged although the code numbers may remain the same. There would be some advantage for comparative purposes between departments if as far as possible the same code numbers became universal.

Our code is based on what is known as the Decimal System. In the County Health Department of Los Angeles County, there are 9 major bureaus which naturally then form a basis for the code. Thus the Bureau of Administration runs from 10 to 19; the Medical Service Bureau from 20 to 29; the Bureau of Maternal and Child Hygiene from 30 to 39; Bureau of Inspections 40–49; Bureau of Nursing 50–59; Bureau of Communicable Disease 60–69; Bureau of Laboratories 70–79; Local District Organization 80–89; Bureau of Medical Social Service 90–99.

In the actual use of the code the whole numbers refer only to the work of the bureau chiefs, such as 10–20–30, etc. The next numbers, 11–21–31–41, etc., with their decimals refer to the functions and employees immediately working under the bureau chief and functioning throughout all districts. The local work performed throughout the districts and towns uses up the remainder of the digits from 2 to 9 with the usual decimal subdivisions. The arrangement of the code is such that unlimited expansion is possible, and whole numbers are left vacant here and there to pick up new functions as they develop.

OTHER CODES

In addition, each city and each employee has a code number. It is thus possible to pick out with the codes all the work performed in any city or town and also to segregate the cost for the entire department by personnel, nurses, inspectors, etc.

SYMBOLS

In connection with the code numbers, it was found expedient to use 2 full columns on the card, which permits the creation of 100 letter symbols to indicate the main kinds of work performed. This is precisely the same system as is used in the dial telephone where combinations of letters are used because of the difficulty of remembering numbers running over 4 or 5 digits. The letter code is translated in punching by the punch operator to numbers just as the operation of the telephone dial secures the same results through electrical magnetic operation in the telephone building. The letter system is really of considerable help not only as a memory system, but in segregating.

MANUAL

A carefully prepared manual of instructions giving the definitions of all terms used and their abbreviations,

with the different functions of the department, together with the entire code and samples of daily time sheets properly filled out, is furnished each employee.

DAILY TIME RECORDS

The character of the time sheets used differs according to the type of work performed, namely whether the worker uses an automobile or performs office work or other work confined to a building. Owing to the fact that the county government pays mileage, it is necessary to keep an absolutely accurate account of the day's trip, giving starting time, stopping time, and the address of each place visited, while the code takes care of the work performed and parallel, horizontal columns provide for the units of work.

CLINIC RECORDS

One of the most notable accomplishments has been the adaptation of this method to securing proper clinic records. It is a notorious fact that clinic statistics throughout the United States are relatively very inaccurate. An original and unique system has been built up in the department on clinic statistics and is being rapidly extended throughout the department. A code has been devised for tabulation in the clinics which obviates the necessity of bringing the original records into the office. This card serves as an index to each individual case of tuberculosis throughout the entire county, as well as a statistical card. The system of clinic records worked out in our department was described in "Measuring Out-Patient Service in Los Angeles County"—in *The Modern Hospital*, April, 1931, relative to the accumulation of proper totals on new patients, old patients, etc., concerning which there has been so much confusion throughout the United States in clinic statistics.

The number of cards punched and sorted monthly is now 75,000. The number of employees in the department averages 455, including full-time and part-time persons. The total budget of the department last year was $1,218,066.00. For an expenditure of 1.7 per cent of our total budget, we are in a position to secure accurate, detailed cost statistics of major operations of the department. Studies have already been made of costs of clinic visits by bureau and division, and costs of field work, which have resulted in many changes in management. For example, in relation to milk inspection, our studies have enabled us to cut down the cost of this work 33⅓ per cent. During the past year, with the aid of the Hollerith cost system the total amount expended by the department was decreased 5 per cent over the year previous, although the amount of floor space increased 31 per cent, the medical work in our clinics increased 33 per cent, and the communicable disease cases handled increased 45 per cent. Actually 5.1 cents less per capita was expended on salaries and maintenance for the year 1930 than in 1929, in spite of an enormous increase in work, due to the improved methods of management resulting from a better knowledge of details in the situation.

COMMITTEE ON STANDARDIZATION

In connection with the studies mention must be made of the work of the Committee on Standardization. This committee, created about 18 months ago, consists of a representative of the Bureau of Administration and of each of the major bureaus in the department, and considers all requests for new procedure throughout the entire department. Forms have been standardized, as well as the purchase of drugs and other supplies, and every effort made to apply modern business principles in bringing about economical operation. In a widely decentralized department

under the usual bureau system, such a committee correlates and investigates, and represents a fact finding buffer between the chief executive and the employee. It also permits the employee to participate in the management, arouses interest and secures better cooperation.

Typhoid Fever in Salisbury—In July, 1930, in Salisbury, Md., there occurred 80 cases of typhoid fever with 7 deaths. Fifty-seven of these cases were under 25 years of age. More females were attacked than males. The outbreak was traced to a typhoid carrier located on a farm producing milk for Dairy B. This dairy produced 3 types of raw milk, the first being put up in quarts, the second in pints and the third being a special baby milk with a colored cap. There were 532 households served by this dairy and in 265 instances milk bottled in quarts was used. In 50 of these 265 homes typhoid developed. In 203 homes, which took milk only in pints, no cases occurred and in 64 homes, taking only the baby milk, there were no cases. The carrier had had contact only with the milk sold in quarts. It was found that milk shakes purchased in drug stores were responsible for 6 cases. When the outbreak occurred a public clinic was established for immunization, at which 7,080 persons were treated and about 5,400 were immunized by private physicians. The population of Salisbury in 1930 was 11,081, while there were 31,304 inhabitants in the county.—S. H. Hurdle, Milk-Borne Epidemic of Typhoid Fever in Salisbury, Md., *J. Prev. Med.*, 5, 465 (Nov.), 1931.

Goiter Prevention—A comparison is made in the incidence of goiter in Cleveland and Detroit for the years 1914 and 1931. In the latter city following a survey made in the schools in 1924 a program for goiter prevention was inaugurated by the Michigan State Health Department providing for the addition of iodine to table salt. In Cleveland opposition to such prophylaxis developed from physicians who emphasized the danger of hyperthyroidism. In Detroit in 1924, 36 per cent of the children examined were found to have goiters while in 1931 this had been reduced to 12 per cent and only 0.3 per cent had iodine deficiency goiters. In Cleveland in 1924, 34 per cent of the children examined had goiters, while in 1931 30 per cent were found to have goiters and 18 per cent suffered from iodine deficiency goiter. The reports of the Detroit Department of Health indicate that the incidence of goiter has decreased from 36 per cent in 1924 to 2.1 in 115,000 pupils examined in 1931. Also the number of toxic goiters has decreased in Detroit hospitals. The author concludes that Michigan has eliminated from her schools thousands of cases of feeblemindedness which have in the past and would in the future result from endemic goiter.—O. P. Kimball, The Prevention of Goiter in Detroit and Cleveland, *J. A. M. A.*, 97: 1877 (Dec. 19), 1931.

Illinois—One of the new activities of the Illinois Department of Health, Division of Public Health Instruction, in 1930, was the construction of a series of scientific exhibits. This was a cooperative undertaking with the University of Illinois Medical College, which constructed the units, while the state division aided in planning and paid for the material and technical work.

Four units were constructed, one each dealing with pneumonia, typhoid, diphtheria, and tuberculosis. Each was built with the idea of presenting as fully as practicable the history, characteristics, importance, and means of control of these diseases. Pathological and normal specimens, charts, microscopic views, graphs and placards were pre-

pared for display, X-ray photographs were taken, and wax models were built. These elements were assembled into specially constructed booths for permanent exhibit purposes. They are to become the nucleus of a museum for medical students at the University, as well as forming the basis for general educational exhibits at the State Fair and for other appropriate occasions.—*Thirteenth Annual Report*, Dept. of Public Health, Illinois, 1930.

Providence, R. I.—An admirable set of health reports from Providence contains the records of the superintendent of health, the city registrar (including tables for 75 years), and the milk inspector, for the year 1930. These documents, from Dr. Charles V. Chapin, are of immense value to health administrators.

Model statistical tables, classified financial data, with comparisons for the previous year, and interesting descriptive text characterize the reports. The first step in the supervision of the health of infants is the distribution of prenatal letters to prospective mothers. During the year, 1,239 such letters were requested, 696 requests coming before the seventh month of pregnancy.

Six nurses supervise the children delivered by midwives (8 per cent of total) until they are 5 years old, making 14 calls on each well baby before it is 1 year of age, monthly calls during the second year, and 4 calls a year thereafter. One nurse supervises the infants and young children in licensed boarding homes, and the infants of such unmarried mothers as are not under the nursing supervision of private agencies. One nursing visit is made to each infant delivered by a physician, provided the mother is not on the maternity service of the District Nursing Association or a ward patient at the Lying-In Hospital. Coöperating with the State Children's Bureau, nursing visits are made periodically to the licensed maternity homes and to day nurseries. The District Nursing Association employs on its children's service 21 staff nurses with 2 supervisors. During the year these nurses had under supervision 4,325 infants and 1,639 children, 1 to 5 years of age, inclusive. These nurses made 31,940 home visits to infants, 13,109 visits to preschool children, and 11,137 visits to 2,052 prospective mothers. Fourteen child welfare stations were maintained.

One of the features of the report of the superintendent of health is a series of tables for typhoid, diphtheria, and scarlet fever, 1884–1930, showing by years and months the cases and deaths, and by years the mortality and fatality rates from these diseases. For the past 16 years, separate data are also given for non-residents admitted to city hospitals. The city registrar's report of 127 pages contains a wealth of information for epidemiologists and health officers.

LABORATORY

A FURTHER NOTE ON THE DISAPPEARANCE OF BACTERIA APPLIED TO THE SKIN

JOHN F. NORTON, PH. D., AND MARGUERITE F. NOVY

Department of Health, Detroit, Mich.

THIS brief statement is intended to supplement results already published by the authors.[1] Arnold has suggested that the 10-minute interval between the application of bacteria to the skin and the first test for disappearance of the organisms does not give as striking results as when a shorter time interval is used. A series of 12 experiments was made by us, using *B. prodigiosus* as the test organism and the palmar surface of the hand as the test area. Samples were taken every minute and agar plate counts made according to Arnold's technic. Table I gives the results.

The reduction in number of bacteria recovered is evident after 2 minutes and striking after 3 minutes. The same correlation between reduction of bacteria and apparent dryness of the skin surface, as previously reported, was observed in these tests. To determine the part the skin may have played in this reduction, tests were made in the following manner. A piece of brown wrapping paper was marked into uniform squares, sterilized; the surface

TABLE I

DISAPPEARANCE OF BACTERIA FROM THE PALMAR SURFACE OF CLEAN HANDS
COLONIES ON AGAR PLATES

B. prodigiosus

Time in Minutes			
0	1	2	3
1,200	112	*0	0
2,400	2,500	1,200	*900
2,000	2,100	1,800	*31
3,000	1,000	600	*22
3,200	800	750	*430
2,100	1,070	*720	0
950	*560	0	0
2,000	2,100	1,100	*800
950	600	*230	6
2,000	1,800	640	*0
2,200	1,200	*420	1
850	—	950	1,000

* = surface apparently dry.

TABLE II

DISAPPEARANCE OF BACTERIA FROM THE SURFACE OF PAPER
COLONIES ON AGAR PLATES

B. prodigiosus

Time in Minutes			
0	1	2	3
230	1	0	0
1,800	420	195	26
162	360	7	3
210	200	4	4
260	910	3	0
450	120	204	7
1,600	1,800	0	2
780	800	*2	1
900	*116	14	26
1,200	1,500	*5	2
2,500	2,000	*51	7
2,200	2,300	*1,800	20

* = surface apparently dry.

TABLE III

DISAPPEARANCE OF *B. typhosus* FROM THE SURFACE OF WASHED HIDE
COLONIES ON AGAR PLATES

Time in Minutes			
0	10	20	30
520	66	*0	0
550	380	*1	1
350	135	*2	0
350	*0	0	0
1,200	1,500	450	*0
550	1,000	1	*0
700	*8	0	0
950	*0	0	0
650	*4	0	0
750	*1	0	0
800	390	*0	0
1,200	1,100	1,100	*0

* = surface apparently dry.

TABLE V

DISAPPEARANCE OF STAPHYLOCOCCUS AUREUS FROM THE SURFACE OF WASHED HIDE
COLONIES ON AGAR PLATES

Time in Minutes			
0	10	20	30
900	*750	350	360
1,200	*1,000	640	800
1,400	1,320	*820	900
1,500	*960	840	800
1,800	1,500	*1,300	1,200
1,000	1,200	820	*800
1,400	1,000	*780	400
1,200	600	*350	89
1,800	*800	600	500
1,500	900	*850	230
1,000	*490	25	—
1,100	850	*600	360

* = surface apparently dry.

inoculated with a suspension of *B. prodigiosus*, and the paper fastened on the dorsal surface of the hand with adhesive tape. A cotton swab was rubbed over the surface of a square at each 1-minute interval, and agar plates inoculated as before. The results are given in Table II.

The results are similar to those recorded in Table I except that the dis-

TABLE IV

DISAPPEARANCE OF STREPTOCOCCUS HEMOLYTICUS FROM THE SURFACE OF WASHED HIDE
COLONIES ON BLOOD AGAR PLATES

Time in Minutes			
0	10	20	30
500	—	—	60
1,000	500	400	75
750	400	100	44
300	300	450	7
—	500	125	*4
800	500	300	*27
480	400	34	*36
900	700	240	*41
600	400	*7	39
1,000	*400	320	240
520	*26	92	56
1,400	700	*500	400

* = surface apparently dry.

TABLE VI

DISAPPEARANCE OF B. TYPHOSUS FROM THE SURFACE OF PAPER
COLONIES ON AGAR PLATES

Time in Minutes			
0	1	2	3
56	148	76	*0
350	650	*26	8
230	450	*0	1
1,800	1,800	*17	8
720	1,200	*3	4
600	650	*8	19
570	520	*0	16
350	500	*16	21
400	*250	13	15
830	950	*300	130
1,300	1,200	*22	76
1,500	*650	94	10

* = surface apparently dry.

TABLE VII

DISAPPEARANCE OF STAPHYLOCOCCUS AUREUS FROM THE SURFACE OF PAPER COLONIES ON AGAR PLATES

	Time in Minutes		
0	1	2	3
1,800	320	550	400
1,100	1,200	*900	400
1,500	1,200	*460	350
1,300	*1,400	820	190
1,200	1,000	*700	640
800	660	*155	—
1,100	900	*62	43
1,500	1,100	*600	500
1,200	1,800	*400	135
1,800	1,200	*300	550
600	400	*300	118
900	650	*115	46

* = surface apparently dry.

appearance of the test organism was more rapid on the surface of the paper than on the hand. There is no evidence in these experiments that the skin possesses any germicidal power.

Since the disappearance of pathogenic bacteria from the skin is of far more importance than that of the non-pathogen *B. prodigiosus*, two series of experiments were made to determine how the former group of bacteria would act. *S. hemolyticus* (a strain isolated from a case of erysipelas), *S. aureus*, and *B. typhosus* were used. In the first series, tests were made on washed hide and in the second, on brown wrapping paper according to the method described above. Comparisons should be made with the data already published for *B. prodigiosus*.[2] Tables III to VII give the results.

Again, reduction in the number of bacteria recovered as measured by the number of colonies appearing on agar plates corresponded to the time at which the surface appeared dry. The results with *B. typhosus* were almost identical with those obtained on washed hide when *B. prodigiosus* was used. The hemolytic streptococcus survived for a somewhat longer period than *B. typhosus*. The most resistant of the organisms tested was *S. aureus*. Even after the inoculated surface was apparently dry the reduction in numbers of *S. aureus* was relatively small as compared to *B. typhosus* and *B. prodigiosus*. A similar comparison can be made on the paper surface between these three organisms.

These experiments tend to confirm our previous conclusions that the skin possesses no inherent germicidal activity, and that the disappearance of certain bacteria from the surface of the skin is largely dependent on the removal of moisture. Pathogenic bacteria are known to vary in their resistance to desiccation. The results obtained in these experiments can be explained on the basis of this variation. The two sensitive species used in these tests lose their color when stained by Gram's method. The two more resistant organisms are Gram positive. Whether or not this relationship to the Gram stain would hold for other species is not known.

REFERENCES

1. Norton and Novy. Studies on the Self-Disinfecting Power of the Skin, *A. J. P. H.*, 21, 10: 1117 (Oct.), 1931.
2. Loc. cit.

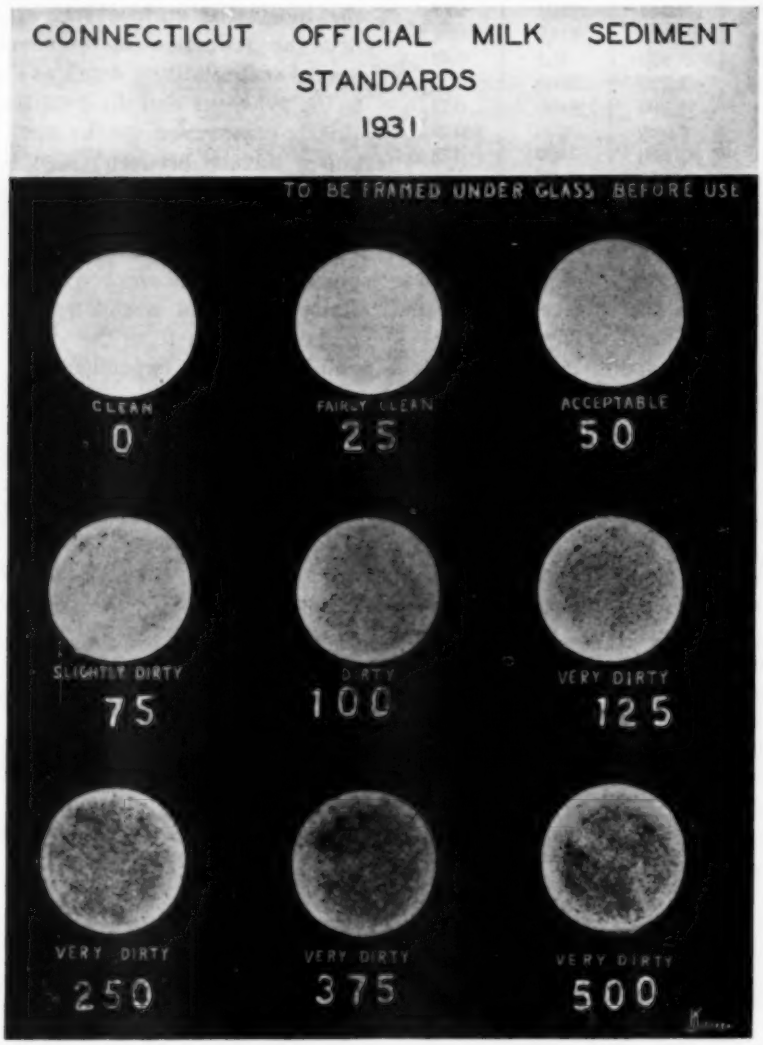
CONNECTICUT OFFICIAL MILK SEDIMENT STANDARDS

FRIEND LEE MICKLE, F. A. P. H. A.

Bureau of Laboratories, State Department of Health, Hartford, Conn.

THE Milk Sediment Standards in use in Connecticut have recently been improved and made available for distribution. This is a photographic standard, being a marked improvement over preceding standards.

Studies made by the Bureau of Laboratories of the Connecticut State Department of Health in modifying and improving the test for visible dirt in milk and in developing a photographic Sediment Standard have been previ-



Connecticut Official Milk Sediment Standards
This photographic reproduction of the standard is not to be used in lieu of standard in the actual grading of milk

ously reported.[1,2,3,4] Each laboratory in Connecticut making milk examinations has now been advised that the 1931 standards are ready for mailing. Each edition has found rather a wide use outside of Connecticut. A cut of the new standards is reproduced herewith.

The 1931 standards have several advantages over previous ones:

1. The photography is a marked improvement.
2. The diameter of the standard discs is the same as the discs to be graded.
3. The range of the standard now covers the entire range from Clean to Very Dirty on one photograph so that the one standard is applicable to both laboratory and field use for all samples of milk.
4. Both the "Cleanliness Ratings" from Clean to Very Dirty and the "Sediment Scores" are printed below the standard discs.
5. The "Cleanliness Ratings" are now more applicable to the correct grading of filtered, clarified or bottled milk.
6. The "Sediment Scores" are now designated by whole numbers rather than by the small fractions that represented "milligrams per pint." Scores of 50 and below are "Clean" or "Acceptable"; scores of 75 and 100 are "Slightly Dirty" and "Dirty"; and scores of 125 or above are "Very Dirty."

Interested persons have been notified that the new 1931 standards can be purchased from the State Department of Health at Hartford, Conn., at a cost of $1.00 each. The Director of Laboratories has requested that criticisms or comments following the use of these standards be made to him.

REFERENCES

1. Mickle, Friend Lee. Modified Sediment Test for Visible Dirt Adopted in Connecticut, *A. J. P. H.*, 18, 7: 926 (July), 1928.
2. Mickle, Friend Lee. Connecticut Standard Test for Dirt in Milk, *Health Bull.*, Connecticut State Dept. of Health, 42: 27, 1928.
3. Mickle, Friend Lee. Failure of Standard Method for Visible Dirt in Milk to Meet Connecticut Requirements, *A. J. P. H.*, 19, 2: 172–178 (Feb.), 1929.
4. Mickle, Friend Lee. The Sediment Test for Visible Dirt in Milk—Its History, International Assoc. of Dairy and Milk Inspectors, 18 *Ann. Rep.*, 1929, pp. 93–108.

VITAL STATISTICS

New York State Death Rate Decreases Nearly One-half in Four Decades—In the course of the last forty years the general death rate in New York State was cut almost in two —from 21.4 per 1,000 population in 1890 to 11.7 in 1930. Had the death rate of 1890 prevailed last year, there would have been 270,489 deaths instead of the actual number, 147,424. In other words, the remarkable improvement in the public health represents a saving of almost 125,000 lives in the single year of 1930. The general death rate of New York City dropped 62 per cent between 1890 and 1930; upstate the rate decreased 28 per cent.

An analysis of the movement of mortality in the state in 1890–1930 according to age brings out the important fact that the reduction in the general death rate was due almost entirely to a decrease in mortality in the younger ages, under 45 years; there was but little improvement in middle life, while the death rate among older persons, over 60 years of age, has exhibited in recent years a slight upward trend.

The death rate among males was higher than among females at all ages. The total male death rate in 1930 exceeded the death rate among females by 18 per cent. In 1890 the excess mortality among males was somewhat less, 15 per cent. In 1930 the death rate among males was greater than that among females by 22 per cent in New

York City, and 13 per cent upstate.—New York State Dept. of Health, *Health News*, 8: 218 (Nov. 30), 1931.

Annual Report of Surgeon General of Army—Automobiles were the leading cause of death in the United States Army in 1930, according to the annual report of Surgeon General Robert U. Patterson. If it had not been for the material increase in the number of deaths from automobile accidents, the mortality rate for the year would have been the lowest on record. All but 11 of the 72 deaths from automobile accidents occurred in privately owned cars. Suicides, which, during 8 of the preceding 9 years, had led the list, were second, and tuberculosis was third, with drowning and cancer in fourth and fifth positions. The average daily strength of the army was 137,299. There were 50,910 enlistments in 1930 as compared with 61,898 in 1929. The annual hospital admission rate from all causes (608 per 1,000 men) was the lowest recorded in the history of the army. The most notable advance was in the control of communicable diseases, and especially of those transmitted through the gastrointestinal tract: typhoid, diarrhea and dysentery. The leading causes of admission were bronchitis, gonorrhea, acute tonsillitis, athletic exercises and chronic tonsillitis. The number of malarial fevers was reduced to less than 800 in each 100,000 men. During the year, 1,546,786 days were spent by the military personnel on sick report, as compared with 1,551,915 in 1929. The average daily noneffective rate from disease was 30.9 as compared with 31.3 in 1929 and 30.2 in 1928, and the leading causes were gonorrhea, tuberculosis, syphilis, athletic exercises and automobile accidents. The leading causes of disability were dementia praecox, tuberculosis, constitutional psychopathic state, mental deficiency and pes planus. The admission rate (47.7) for venereal diseases was the lowest in the history of the army; this group of diseases caused 7.9 per cent of all admissions to hospitals and quarters, 16.3 per cent of the loss of time on account of sickness, 4.6 per cent of the discharges for disability, and about 2 per cent of the deaths. Since the inauguration of the campaign for the prevention of venereal disease in 1909, the army rate has been reduced 73 per cent. The rate for influenza was the lowest recorded since 1888.—*J. A. M. A.*, 97: 1719 (Dec. 5), 1931.

Preliminary Report on Marriage and Divorce for the United States, 1930—The Bureau of the Census announced that, according to the returns received, by the Department of Commerce, there were 1,128,180 marriages performed in the United States during the year 1930, as compared with 1,232,559 in 1929. These figures represent a decrease of 104,379 or 8.5 per cent. There was an increase of 4.2 per cent from 1928 to 1929. During the year 1930, there were 191,630 divorces granted in the United States, as compared with 201,468 in 1929, representing a decrease of 9,838 or 4.9 per cent. There were 4,333 marriages annulled in 1930, as compared with 4,408 in 1929. The estimated population of continental United States on July 1, 1930, was 123,191,000, and on July 1, 1929, 121,526,429. On the basis of these estimates, the number of marriages per 1,000 of the population was 9.2 in 1930, as against 10.1 in 1929; and the number of divorces per 1,000 of the population was 1.56 in 1930, as against 1.66 in 1929.

While the net decrease in the number of marriages performed in the country as a whole was 8.5 per cent, the relative change in the different states ranged from a decrease of 28.5 per cent in Texas to an increase of 29.5 per cent in New Mexico. (Only 9 states reported increases—Maine 3.9 per cent;

Nebraska five-tenths of one per cent; Virginia 1.3 per cent; Kentucky 2.1 per cent; Louisiana 1.0 per cent; Oklahoma 2.2 per cent; New Mexico 29.5 per cent; Arizona 4.2 per cent; and Nevada 6.4 per cent. Of those 9 states, 7 adjoin states in which recent changes in the marriage laws require from 3 to 5 days to elapse between the application for a marriage license and the issuance of the same. Virginia adjoins North Carolina where a law, effective July 1, 1929, applies to those under 21 years of age; Kentucky's increase is due in part to a change made in the laws of Tennessee, effective on the same date, but applicable to all parties; Louisiana, Oklahoma, and New Mexico adjoin the State of Texas where a law requiring physical examination as well became effective June 13, 1929; and Arizona and Nevada adjoin the State of California where the law became effective July 29, 1927. In the case of North Carolina and Tennessee, 5 days must elapse while California and Texas require 3 days.)

The rate of marriages per 1,000 of the population ranged from 4.6 in North Carolina and 4.7 in Delaware to 20.5 in New Mexico and 67.0 in Nevada. In general, the changes in the number of marriages per 1,000 of the population form a more satisfactory index of the trend with regard to marriage in the several states than do the actual number of marriages, because they take account of differences in the rate of increase in the general population.

In 1930, for the United States as a whole, 5.9 marriages for each divorce were reported, as against 6.1 in 1929. The District of Columbia and New York State, each having but one cause for absolute divorce, reported 57.5 and 24.5, respectively, while the rates in the other states ranged from 12.9 marriages to each divorce in Georgia to 2.3 marriages to each divorce in Nevada. The changes in the various states as regards the number of divorces compared with the year 1929 ranged from a decrease of 19.1 per cent in the District of Columbia to an increase of 21.3 per cent in Delaware. Increased rates for divorces were reported by 9 other states, Maine, Massachusetts, Connecticut, Pennsylvania, Virginia, Arizona, Utah, Nevada and California. The ratio of divorces per 1,000 of the population in the individual states in 1929 ranged from 0.19 in the District of Columbia and 0.38 in New York to 3.22 in Oklahoma and 28.67 in Nevada.—*Prel. Report Marriage and Divorce for the U. S., 1930,* Jan. 2, 1932.

Health Conditions in the United States, 1930—In a report recently made to Congress, Surgeon General H. S. Cumming stated that reports of the prevalence of communicable diseases received by the Public Health Service from state health officers and preliminary reports of deaths from several sources indicate that the health record for the United States for the calendar year 1930 was exceptionally good.

The geographic distribution of smallpox in the United States is very irregular. Seven states—Kansas, Delaware, District of Columbia, Maine, Maryland, New Hampshire and Rhode Island—reported no cases of smallpox in 1930. The greatest prevalence of smallpox in that year was in South Dakota with 259 cases per 100,000 population. Indiana reported 164 cases of smallpox per 100,000 population and the State of Washington 152 cases per 100,000 population.

During the calendar year 1930 the incidence of influenza in the United States was unusually low. The death rate from influenza for the year 1930 was 18.7 per 100,000 population as compared with 54.6 per 100,000 population in 1929 and 42.1 in 1928. The fact that there was no general outbreak

of influenza during 1930 probably helped greatly in keeping the general death rate for the year low, as there is usually an increase in the number of deaths attributed to certain other diseases when influenza is prevalent.

Infantile paralysis was more prevalent during the calendar year 1930 than it was in 1928 or 1929. In the spring of 1930 the reports showed increased incidence of infantile paralysis on the Pacific Coast, and later considerable numbers of cases of the disease were reported in other parts of the country, especially in Louisiana, Oklahoma, and some of the North Central states. In the country as a whole, infantile paralysis reached its peak for the year about the first of October. An outbreak began in New York City soon after the close of the fiscal year. This outbreak later reached considerable proportions, the number of cases being considerably in excess of those reported for the preceding year.

The tuberculosis death rate for the calendar year 1930 was the lowest ever recorded by the Public Health Service. It was 68.5 deaths per 100,000 population as compared with 73.1 in 1929 and 76.4 in 1928. In 1900 the Bureau of the Census recorded a death rate from tuberculosis of 201.9 per 100,000 population. The difference between the tuberculosis death rates of 1900 and 1930 represents a saving of more than 160,000 lives in 1930 which would have been lost from tuberculosis in the United States if the 1900 rate had prevailed that year.

The prevalence of typhoid fever has been decreasing in the United States since comparable yearly statistics of cases and deaths have been available. During the calendar year 1930 a slight reaction was shown by the reports. The increase was reported during the last 6 months of 1930 and in some states at least it may have been influenced by the drought conditions which resulted in pollution of water supplies or necessitated the taking of drinking water from new or unknown sources. The typhoid fever rates as computed from reports to the Public Health Service were as follows: 1930, 22 cases per 100,000 population; 1929, 19 cases; and 1928, 22.7 cases.

The case and death rates for diphtheria in 1930 were the lowest which the Public Health Service has ever recorded—54.2 cases and 4.9 deaths per 100,000 population. Ten years ago, 1920, the diphtheria case rate was 155 per 100,000 and the death rate was 15.3 per 100,000.

From 1924 to 1928, there was an increase in the prevalence of pellagra in the United States. In 1929 the reported incidence of the disease decreased somewhat, and there was a further decrease during the year 1930. During the first 6 months of 1931, however, 16,385 cases of pellagra were reported to the Public Health Service as compared with 13,359 cases reported during the first 6 months of the preceding year.

More than 1,450 cases of undulant fever were reported to the Public Health Service for the calendar year 1930. The disease has been recognized in every state of the Union.

Rocky Mountain spotted fever is not reportable in many of the states east of the Rocky Mountains. In 1930, 167 cases were reported from California, Colorado, Idaho, Montana, Nevada, Oregon, Washington and Wyoming. During the year workers of the Public Health Service identified, by laboratory and clinical studies, Rocky Mountain spotted fever, eastern type, in several states along the Atlantic seaboard. There is evidence to indicate its existence in this area at least since 1909. In 1931 cases were reported in the District of Columbia and Maryland.—U. S. P. H. S., *Health News*, H60.

PUBLIC HEALTH ENGINEERING

FACTORS IN THE ECONOMICS OF WASTE DISPOSAL

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THE scope of this paper has been confined to several factors which I believe to be of fundamental importance for the economics of waste disposal, instead of a more pretentious attempt at a comprehensive outline of a combined system of the disposal of city refuse and sewage, in which the operating costs can be practically reduced to fixed charges and labor. A consideration of the combined system of waste disposal necessitates the introduction of the long and tedious computations of engineering thermodynamics as well as a familiarity with certain aspects of organic chemistry, which are not subjects of common parlance in waste disposal practice and literature. On the other hand, it is possible to bring into focus several outstanding features in the combined system of waste disposal and discuss them in more or less conventional terms.

FUEL VALUE OF SEWAGE SLUDGE

Combustible Gas from Putrefaction—The formation of combustible gas in the putrefaction of organic matter is well known to every bacteriologist who has used a fermentation tube and the gas formulas of Theobald Smith as an aid in the identification of species of gas-forming bacteria. The colon bacillus and the gas-bacillus of Welch, which are normal inhabitants of feces and sewage, are active gas producers. Sewage grease is an important source of methane or marsh gas in the putrefaction of sewage sludge.

In the breaking down of protein, fat, and carbohydrate by animal and bacterial ferments, fatty acids are formed as intermediary products. The fermentative production of methane and carbon dioxide from the salts of fatty acids higher than acetic, including proprionic, succinic and oleic, has been demonstrated experimentally by A. M. Buswell. Acetic acid is the end product of the beta-oxidation of straight chain fatty acids with an even number of carbon atoms.

In the oxidative deaminization of amino-acids from protein, carbon dioxide and ammonia are given off, and the resulting deaminized amino-acid is a fatty acid with one less carbon atom. One of the most widely known reactions in the fermentative production of methane and carbon dioxide from fatty acids is the bacterial hydrolysis of the calcium salt of acetic acid:

$$(CH_3COO)_2Ca + 2H_2O = 2CH_4 + CO_2 + CaCO_3 + H_2O.$$

As a rule, the formation of methane from fatty acids does not exceed two molecules of methane for one molecule of carbon dioxide gas or one molecule of methane to one molecule of total carbon dioxide and carbonate. Methane is a relatively insoluble gas, whereas carbon dioxide is not only very soluble but

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it also combines readily with ammonia and other bases present in sewage to form carbonates, which accounts for the fact that the limiting value of the combustible gases in the gases from sludge putrefaction is about 85 per cent instead of 66.6 per cent. It has been stated that the average production of gas from sludge digestion amounts to 0.75 cu. ft. per person per day, with an average heating value of 750 B.t.u. per cu. ft. The average figures would indicate a production of 563 B.t.u. per person per day.

The fuel value of fresh sewage sludge varies from 4,000 to 7,500 B.t.u. per lb., dry basis; the values for a particular sludge depending upon the content of inert mineral matter and of adventitious grease, the former effecting a lowering of the heating value and the latter contributing largely to the higher fuel values of certain sludges. Taking 6,000 B.t.u. as an average for heating value of sludge, dry basis, and 0.15 lb. as the daily per capita contribution of recoverable sewage solids, there would be 900 B.t.u. contributed per person per day in the form of fresh and recoverable sewage solids.

Both of the figures, 563 B.t.u. from the gases of sludge digestion and 900 B.t.u. from fresh sludge, per person per day, are subject to errors in the law of averages, and the larger the numerical data, the smaller the error. It is well known that certain anaerobic, gas-forming organisms produce hydrogen in the course of putrefaction. Small quantities of hydrogen have been reported in the combustible gas arising from the putrefaction of sludge; the presence of hydrogen in these gases would raise the heating value of the gas above the theoretical limit of one-half of the heating value of fresh sewage solids. I have simply taken available data to indicate a loss of approximately one-half of the original heating value of fresh sewage solids when the same solids are subjected to putrefactive fermentation with recovery of combustible gases, and why. A similar conclusion has been previously advanced by M. J. Blew from a study of the fuel values of fresh sludge and of the residues from sludge digestion.

Mosquitoes Transported by Airplanes—This paper briefly recites the growing public health interest in the possible importance of the transportation of mosquitoes by aircraft and the determination of the U. S. Public Health Service to answer the much propounded questions as to whether mosquitoes "are carried in airplanes, and, if so, to what extent, the distance of such transportation, the species of mosquitoes, and the types of planes on which they are carried."

Daily inspection of all airplanes arriving at the Miami, Fla., ports of the Pan American Airways System were made from July 23 to September 18, 1931. There were three types of airplanes: trimotor Fokker, Sikorsky Amphibian, and Commodore hydroplane—all cabin airliners.

Fokkers fly between Havana and Miami daily, between San Juan, P. R., and Miami three times a week, stopping at Santo Domingo, Port au Prince, Haiti, and Camaguey, Cuba, on the north-bound, 1-day trip. Sikorskys operate between San Salvador, Salvador, and Miami, stopping at Tela, Belize, Cozumel, and Havana (over-night). Commodores operate between Cristobal, C. Z., and Miami, stopping at Barranquilla, Colombia; Kingston, Jamaica (over-night), and Cienfuegos, Cuba.

From July 23 to September 12, there were 102 inspections made, and 29 mosquitoes captured, 1 male *Aedes aegypti* and 28 *Culex quinquefasciatus*. Representatives of the following species had been captured on the airplanes up to the time of the publication of the paper: *Aedes aegypti, Culex quinque-*

fasciatus, *Mansonia titillans*, *Aedes taeniorhynchus*, and *Anopheles albimanus*. The "Do-X" was also inspected and 4 mosquitoes were found aboard.

Very exact and conclusive experiments were conducted, wherein "laboratory-bred" mosquitoes were stained and placed aboard trimotor Fokker cabin planes at San Juan, P. R., just before leaving for Miami. *Aedes aegypti* (with a few *Culex quinquefasciatus*) were used. These, in cloth cages, were stained by spraying with an atomizer, using a 2 per cent watery solution of yellowish, water-soluble eosin, and about 20 c.c. of dilute stain for each cage of 30–40 mosquitoes.

The stained specimens were put aboard the plane on each of three successive trips, being liberated in all compartments just before the passengers got aboard and the plane took off. These planes leave early in the morning and arrive in Miami the afternoon of the same day, stopping at Santo Domingo, Port au Prince, and Camaguey, the time of stops aggregating more than an hour, and the flying time from San Juan to Miami being approximately 10 hours.

Of 40 mosquitoes (mostly *Aedes aegypti*) put aboard at San Juan on September 13, 13 were recovered from the plane on landing at Miami; 3 of 30 specimens placed aboard on September 16, and 6 of 30 placed aboard on September 18, making a total of 22 of the 100 stained specimens liberated on airplanes at San Juan which were recovered at Miami on the afternoons of the days of flights.

One of the investigators made the round-trip flight from Miami to San Juan and reported only 1 mosquito biting *en route*, and this at an altitude of approximately 3,000 feet. In identifying stained specimens, a solvent composed of glycerine 4 parts, absolute alcohol 4 parts, and ether 1 part was used. Each mosquito was covered with a drop of the solvent and a tinting of the drop occurred if the specimen was stained.

A description of a power suction apparatus devised by the authors for capturing mosquitoes is given. Cuts showing types of airplanes, mechanical collecting device and staining procedure accompany the article.

The authors' conclusions are, briefly: (1) where airplanes may become heavily infested it may be expected that approximately one-fifth of the original number of *Aedes aegypti* will be carried for a distance of at least 1,250 miles, with repeated landings and opening of doors, hatches, etc.; (2) ordinarily, small numbers of mosquitoes are carried, but one infected mosquito might "start an epidemic," but "this mode of introduction of mosquito-borne disease is probably secondary in importance to the importation of infected man"; (3) "there is no obstacle to the efficient treatment of airplanes so as to destroy mosquitoes and avoid retardation of air traffic progress."—T. H. D. Griffitts and J. J. Griffitts, *Pub. Health Rep.*, 46, 47: 2775–2782 (Nov. 20), 1931.

Sewage Reclamation Plant for Los Angeles—In order to study sewage reclamation, the City of Los Angeles placed in operation on May 12, 1930, an experimental sewage treatment plant of 200,000 g.p.d. capacity. The purpose of the plant includes:

1. Development of a scheme of treatment which will not be a nuisance nor produce any odors, and will advance utilitarian values to a maximum.
2. Embodiment into one plant of all the best ideas as obtained from visiting other plants throughout the country and gleaned from accounts in the literature of foreign plants.
3. Utilization of mechanical equipment to the fullest possible extent.
4. Investigation into the treatment of industrial wastes.

5. Determination of basic design data for known process of treatment adapted to local conditions of climate, degree of treatment required, and character of sewage to be treated.

6. Demonstration of the degree of treatment required for each proposed scheme of reclamation.

7. Selection of a compact design consistent with simplifying operation.

8. Investigation of any harmful constituents in sewage which might interfere with various schemes of reclamation.

9. Reduction of operation costs to a safe minimum, with installation costs kept within reason.

10. Determination of installation and operation costs applicable to large plants, including labor, power, chemicals, depreciation, research, maintenance, miscellaneous items and contingency.

11. Studies on the recovery of power from gas, fertilizer from digested sludge, and the value of nitrogen in the activated sludge effluent.

12. Construction of a plant such that inspection by the public would gain their confidence and support.

There is a rather complete and interesting description of this undertaking, with sample record forms and photographs. The subject is discussed under the following headings: (1) Design of plant; (2) description of plant; (3) intake works; (4) sedimentation works; (5) aeration and sedimentation; (6) filtration of final effluent; (7) spreading grounds; (8) sludge disposal; (9) cost data; (10) what the plant is accomplishing.—R. F. Goudey, *Western Construction News*, 5, 20: 519–525 (Oct. 25), 1930. From *Pub. Health Eng. Abstr.*, Jan. 17, 1931. Abstr. A. L. Dopmeyer.

FOOD AND NUTRITION

The **Fate of Carotene after Absorption in the Animal Organism**—Variations in the growth rate in response to carotene administration led to an investigation as to the effect on absorption of the character of the diet. Three types of basal diets were used, one, fat-free, another, low in fat, and the third, a fat containing diet.

Daily supplements with irradiated ergosterol and brewer's yeast were given and definite amounts of carotene administered after vitamin A deficiency became apparent. Carotene was administered either in ethyl laurate or palm oil and the excretion of the pigment was tested colorimetrically. As the absorption of carotene was measured by the character of the excreta, the colorimetric and spectroscopic examination of the fats extracted from the feces and from the caecum content was made.

The examination revealed that the yellow color of the fecal fats was entirely due to carotene but in the caecum content carotene accounted for approximately only 50 per cent of the color. The balance of the fat was similar to vitamin A.

Experiments to determine whether this was vitamin A derived from carotene by bacteriological action were negative in most cases, although probable evidence was found in two cases. The importance of the diet was indicated by the rats which when fed on a fat-free diet excreted 90 per cent of the pigment when administered in ethyl laurate. Absorption was better with carotene in palm oil and nearly complete when the basal diet contained 10 per cent of fat. On the basis of the evidence of the investigators that the liver plays an important rôle in the conversion of carotene into vitamin A, an attempt was made to accomplish this with liver tissue *in vitro*, but without success. Further experiments by perfusing the livers of healthy, young cats with carotene solution were undertaken. In these cases the reserves of the cat in vitamin A had been depleted with appropriate feeding. No evidence of any conversion of carotene to vitamin A was obtained from any period up to 17¾ hours. The administration of carotene by mouth to the cats depleted of vitamin A showed no appearance of vitamin A in the liver or blood up to 40 hours. While a large proportion of carotene was unabsorbed, evidence indicated that the pigment entering the tissues was converted into other substances.—Bashir Ahmad, *Biochem. J.*, 25: 1195, 1931.

Some Biochemical and Physiological Aspects of Copper in Animal Nutrition—The increased importance attached to traces of certain metallic elements in food led to this work which was undertaken for further information as to the rôle of copper. While copper has been widely observed and recorded in plants no evidence has been offered as to its function in plant life.

No evidence was adduced by this work that copper bears a direct relation to chlorophyll. Analyses of the copper content of insects and marine animals are given showing an outstanding proportion of copper in the ink sac of the octopus. As no copper is found in the ink itself, the conclusion is reached that copper performs a catalytic function in the production of melanin. A study of the copper content of land animals, in-

cluding three human specimens, indicated that in spite of individual variations, the organs, as to their content of copper, ranged as follows: liver, kidney, heart, lungs, and spleen.

Copper was found in all tissues of the animal body including skin and hair. The copper content of the skin and of the livers of rats increased in relatively small degree compared with the additional copper in the diet.

A study was made on rats of hemoglobin building from inorganic iron, alone or with various supplements. Anemia was produced by cow's milk and the effects of the supplements measured by response in hemoglobin content of the blood. Rapid hemoglobin regeneration was found with copper supplements and rats became anemic when the iron supplements were stopped, notwithstanding a considerable store of iron in the liver, but when copper was fed hemoglobin regeneration followed, indicating the belief that copper feeding brought about utilization of the stored iron in the liver.

The mechanism of the copper reaction is explained on the basis that copper feeding increases the proportion of organic to total iron in the liver and that the change from inorganic to organic is a step in hemoglobin formation, achieved probably by a preliminary formation of a copper porphyrin and subsequent replacement of copper by iron.

The author found that the presence in the diet of over 100 times the normal amount of copper (as copper sulfate) had no detrimental effect on the growth, and normal young could be produced. The same amount as copper acetate or as verdigris was not toxic but no litters were produced by the animals receiving verdigris.—Ira James Cunningham, *Biochem. J.*, 25: 1267, 1931.

Use of Ethylene (T-Gas) in the Destruction of Pests in the Presence of Foods—From tests on numerous foodstuffs it is established that the destruction of pests (in rooms or containers used for the storage of foodstuffs) by means of ethylene oxide in concentrations up to 320 g. per cu. m. has no adverse effect on the quality or flavor of the foods provided that the space treated is thoroughly aerated after treatment.—T. Sudendorf and E. Kröger, *Chem.-Ztg.*, 55: 550, 1931. Abstract, A. R. Powell, *J. S. C. I. Brit. Chem. Abstr.*, B, 50: 904 (Oct. 2), 1931.

Vitamin C in the Orange and the Grapefruit—This study of the relation between antiscorbutic potency and biological activity of the plant was conducted on Palestine oranges and grapefruit from British Honduras and from South Africa, and was continued through 2 seasons, using the same group of trees. The vitamin assay was conducted usually for 90 days and during the test oranges were stored at a temperature of about 15° and the juice expressed daily for the dosage. Chemical analyses of the oranges both seasons showed a range of acidity from 0.33 to 1.37 and the soluble solids citric acid or maturity ratio varied from 6.8 to 35.4. Practically no difference was revealed in the antiscorbutic potency of these oranges and the weight curves were normal.

A similar procedure was followed in the case of grapefruit from British Honduras which showed an acidity ranging from 0.58 to 1.18. No change in antiscorbutic potency during the time of these tests was noted. The same variety of grapefruit (Marsh) from South Africa was assayed. This showed a higher acid content than the same fruit from British Honduras. The vitamin potency, however, was of the same order in both cases. Another variety (Duncan) on one test only was found to be somewhat more active than other grapefruit and the vitamin C content of grapefruit was rather higher than that

of the Palestine oranges. The authors find no correlation between the soluble solids, acidity content, pH of the juice and its antiscorbutic potency.—Mary Forrest Bracewell and Sylvester Solomon Zilva, *Biochem. J.*, 25: 1081, 1931.

Experiments on Nutrition. X. Comparative Vitamin B_1 Values of Foodstuffs. Cereals II—The experiments here reported were made with pigeons. The food was made into pills of white flour and the test grain which was ground finely in a coffee mill. Later in the experiment 1 per cent of cod liver oil was included so the birds would not suffer from a shortage of fat-soluble vitamins. Fishmeal was used to supply protein and mineral salts. A series of tables are given showing the details of each cereal tested. The comparative vitamin B values of the cereals tested are as follows:

	Percentage amount in diet for maintenance	*Comparative vitamin B value*
Dried yeast	4	100
Marmite	6	67
Wheat germ ("bemax")	6–7	62
Middlings	10	40
Baker's yeast	12	33
Bran	20	20
Buckwheat	20	20
Millet	30	13
Oatmeal	35	11
Wheat	40	10
Barley	40	10
Malt	40	10
Rye	40	10
Dari	40	10
Brown rice	40	10

Robert Henry Aders Plimmer, William Henry Raymond and John Lowndes, *Biochem. J.*, 25: 691, 1931.

The Latest Work on Alleged Injurious Effects from Food Prepared in Aluminum Utensils—Professor Lehmann, in line with a former article (*Archiv für Hygiene und Bakteriologie*, Bd. 102, 1929, S. 349) calling attention to the worthlessness of the statements of Held and Betts, offers critical observations on the later articles described as "Aluminum Food Poisoning" by Betts and Held and other authors. He finds no proof of injurious effects on health of small amounts of aluminum.

The few records of sickness at the most can only lead one to believe that only a small number of people are made sick by the ingestion of small amounts of aluminum. There is still lacking definite proof that the symptoms are chiefly traceable to aluminum or that any considerable number of people possess a hypothetical idiosyncrasy toward aluminum.

The views of a greater number of authoritative individuals agree with this conclusion. The fact that isolated individuals might be injured by traces of aluminum does not offer a basis for opposition to the use of aluminum utensils and no legislation has so far taken cognizance of these very widely distributed cases of specific sensitivity to food.—Prof. Dr. K. B. Lehmann, *Arch. f. Hyg.*, Band 106, Heft 6 (Sept.), 1931.

The Evidence of Aluminum and the Aluminum Content of Foods—In preparation for the criticism of the work of Held and Betts published in *Archiv für Hygiene und Bacteriologie*, Bd. 102, 1929, S. 349, analytical methods for determination of small amounts were studied and continued during the past 2 years for improving the methods. These methods are described, and using these methods the aluminum content of a variety of natural animal and plant substances is given, including foods and certain animal organs, including human organs. Results of the author are also compared with the findings of other investigators.—Prof. Dr. K. B. Lehmann, *Arch. f. Hyg.*, Band 106, Heft 6 (Sept.), 1931.

INDUSTRIAL HYGIENE

Portable Motor-Driven Impinger Unit for Determination of Sulphur Dioxide—This brief contribution describes an apparatus for the sampling of the atmosphere for sulphur dioxide gas. The essential collecting portion of the instrument consists of a modified Greenburg-Smith impinger apparatus through which the atmosphere is aspirated by means of a vacuum pump.

The novel form of the apparatus consists in the modified form of the impinger flask which in this case is approximately 25 cm. long and 10 cm. wide at the widest portion. The complete apparatus is mounted in a case 7″ x 9″ x 19½″.

Normal sodium hydroxide is used as the collecting fluid. This is neutralized with 6 c.c. normal hydrochloric acid after which it is titrated with 0.001 normal iodide. A table is presented for the conversion of the c.c.'s of iodide solution used into c.c.'s of sulphur dioxide at various temperatures.—*J. Indust. Hyg.*, XIII, 10: 338–342 (Dec.), 1931. L. G.

The Production of Carbon Monoxide from Paint in Sealed Compartments—In a series of laboratory as well as practical experiments conducted on battleships it was found that the air in hermetically sealed spaces contained traces of carbon monoxide. In general the amount of this gas was found to vary to some extent but usually was present to the extent of 0.3 per cent or less. It was concluded from these studies that the source of the carbon monoxide was the boiled linseed oil used in the making of the paint which coated the interior surfaces of the dead spaces aboard battleships. The presence of carbon monoxide in these studies was demonstrated by both chemical and biologic methods. The biologic tests consisted of animal experiments, while in some cases the Hartridge reversion spectroscope was used.—*J. Indust. Hyg.*, XIII, 10: 333–337 (Dec.), 1931. L. G.

Heat Cramps in Industry: Their Treatment and Prevention by Means of Sodium Chloride—This very interesting contribution presents a review of the literature of heat cramps and describes a typical attack in much detail. The symptoms in addition to the cramps are chiefly an increase in temperature, pulse rate, blood pressure, an increased blood concentration, increased sweating, hyperpnea, increased metabolic rate, a falling in body weight, and certain vasomotor changes.

The author attributes to Dr. J. S. Haldane the suggestion that the cramps suffered by miners are due to salt loss.

In certain factories under the author's supervision, the use of salt began in 1926. At first it was used in small amounts, later the amount was increased to 10, and still later to 16 grains in the form of hard tablets. The salt must be readily available, and containers are described and pictured which are in use at the drinking fountains for the ready supply of the material.

The statistical evidence showing the elimination of heat cramp due to the ingestion of salt is not very satisfactory since the reporting of minor heat cramps is usually not completely carried out. In a general way the author points out that in certain large plants under his supervision the incidence of heat cramps has fallen very dramatically from the year 1928 to the year 1930, during

which time this salt technic was in use.

The most important factors in the production of heat cramps are high temperatures and high humidities coupled with low air motion; that is, factors which interfere with the heat loss from the body. Alcohol, inadequate sleep, inadequate food, and intercurrent disease predispose to heat cramps. Finally it is agreed that heat cramps are readily relieved by the administration of salt solution.—*J. Indust. Hyg.*, XIII, 10: 347–360 (Dec.), 1931. L. G.

Report of the Division of Industrial Hygiene, Ontario, 1930—It is felt that very limited application to industry has been made of the results of investigations regarding the reduction of general sickness in industry, and to optimum methods for performing common tasks such as the moving of loads by hand, etc. The medical supervision for the control of industrial diseases usually results in measures for the control of general sickness.

In investigations, 361 workmen were physically examined with the X-ray, practically all of some years' experience in their trades, covering iron moulders and grinders, porcelain workers, and cement workers. These presented 30 cases of silicosis and 8 cases of tuberculosis. The few cases among moulders arose only after 20 to 30 years' work in the trade. There were a few interesting cases of fibrosis among grinders exposed to artificial grindstone dust and 1 case with exposure to talc dust only.

Examinations of 176 workers from other sources included 100 claims for silicosis and 31 for lead poisoning, referred by the Workmen's Compensation Board. In the remainder of this group there were 10 cases of arsenic and 8 cases of chromium poisoning. In connection with these various cases hundreds of microscopical examinations were made, about 80 quantitative determinations for lead and 40 for silica. Plant investigations likewise required analyses of paints, the dust content of air in granite cutting shops, lead contamination of fruits, poisoning from electric refrigerants, the efficiency of equipment for spray painting, carbon monoxide content of air, etc. Four deaths from gas in a sewage disposal plant proved to be due to hydrogen sulphide.

The records of sickness of 8,000 school children over a 2-year period are being studied in relation to ventilation, age, sex, and weather conditions on sickness rates and the relation, if any, of teachers' sensation of comfort and actual atmospheric conditions.

The division was represented at the International Silicosis Conference in August, 1930, at Johannesburg, South Africa.—J. G. Cunningham, Director, Division of Industrial Hygiene, Ontario, *Annual Report*, Dept. of Health, 1930, pp. 42–43. E. R. H.

Chrome Poisoning with Manifestations of Sensitization—Systemic chrome poisoning is seldom reported despite the fact that some of its compounds are markedly toxic. Chromium itself is non-toxic, but the oxides, acid, and alkaline chromates are directly poisonous as well as powerful irritants on account of their oxidizing properties.

The chief industrial uses of chromium are in dyeing, colored crayon and paper manufacture, inks, plating, and the graphic arts. The workers may be subjected to these compounds as liquids, dust, or vapors.

The symptoms of poisoning and researches on the toxicity of the compounds are described. Striking evidence of absorption from the skin occurs—12 fatalities being cited in the literature from the use of an ointment containing chrome. Acute renal blocking, muscular twitching, and febrile reactions due to infection or necrosis are

outstanding symptoms, but chrome workers suffer especially from dermatitis and rarely from chronic systemic poisoning.

The case here reported was that of an American, aged 25, who entered the hospital February 3, 1930, complaining of ulcers on the hands, difficult breathing and extreme tenderness of the muscles of the extremities. His history showed that he was a subject of hay fever and asthma previous to his employment in a plano-graphic printing establishment 8 months before, where he washed sheets of zinc which had been treated with ammonium bichromate. Skin lesions developed shortly after he began work, causing him to be transferred to another department, when these promptly cleared up. About 1 month before admission he returned to his original work and almost immediately skin eruptions developed. The clinical findings of the case are detailed, notably: marked redness, tenderness, minute vesicles, respiratory wheezes, leucocytosis but no eosinophilia, fever, and acute nephritis with glycosuria, but chromium was not demonstrated in the urine. The patch test applied to the forearm was positive.

The absorption of chrome in this case was probably exclusively through the skin, as there were no lesions in the nose or throat and no digestive symptoms.

Pearce and Sawyer succeeded in producing acute nephritis in dogs by the injection of serum from animals in which experimental chrome nephritis had previously been induced. It is evident in this case that the patient's serum was peculiar, since it contained some substance capable of causing a marked reaction in human controls when injected into the skin.

Despite the complicated picture presented by this case, it seems probable that it may be explained as due to general sensitization to chrome whereby a comparatively mild exposure produced poisoning.—Adelaide Ross Smith, *J. A. M. A.*, 97: 95–98 (July 11), 1931.

E. R. H.

The Dust Hazard in the Abrasive Industry: Third Study—This study reviews the incidence of pulmonary tuberculosis among the employees of a factory devoted to the manufacture of synthetic grinding wheels. The dust in the workroom air is composed of aluminium oxide and silicon carbide.

In all there have been 42 cases of active pulmonary tuberculosis in the plant under consideration in the 13-year period from January, 1918, to December, 1930. The average number of employees during this period was 2,460. Twenty-seven of these cases occurred in persons not exposed to a dust hazard, while 13 occurred among persons exposed to dust. The time of onset varied from 1 year to 21 years. Excluding 4 cases following acute influenza, the proportion of cases occurring in dusty trades was 1½ times that occurring in non-dusty occupations. In spite of this the rate of pulmonary tuberculosis for the factory as a whole is a trifle above that reported for the City of Worcester, Mass., the location of the plant.

The only conclusion which the author desires to draw is—"it is not advisable for persons who have had pulmonary tuberculosis to work in a department in which large amounts of artificial abrasive or any other dust are present."—*J. Indust. Hyg.*, XIII, 10: 343–346 (Dec.), 1931.

L. G.

The Silicosis Act in Quebec—The Silicosis Act, 1931, came into force in Quebec, September 1, 1931. The Act requires every person employed in the cutting, polishing, or finishing of granite to have a certificate of fitness from a medical examiner appointed under the Act, which must be renewed annually.

The employer must furnish masks or

other safety devices as are approved by the Minister of Mines as a protection against silicosis and take such precautions as the Minister may prescribe.

An amendment to the Mining Act which also came into force on September 1, 1931, requires every worker employed underground in any mine, or applying for such work, to be examined for silicosis at least once in every 12 months by a medical officer appointed under the Workmen's Compensation Act. If the medical officer finds the worker to be free from tuberculosis of the respiratory organs, he shall deliver to him a certificate of fitness. A similar certificate is required of workers engaged in any ore or rock crushing operation at the surface of a mine except where the rock or ore is crushed in water, or a solution, and kept constantly moist.

The director of mines may exempt from these provisions any mine which does not contain silica in quantities likely to produce silicosis, or which for any sufficient reason he deems should be exempt. The Lieut.-Governor in Council may make regulations prescribing the nature of the medical examination and the form of the certificate. Workmen who are employed underground for less than 50 hours per calendar month are exempt from the provisions of the Act. Penalties are provided for contravention of the Act. —International Labour Office (League of Nations), *Indust. & Labour Inf.*, XXXIX, 13: 414 (Sept.), 1931.

E. R. H.

Pneumonia in the Native Mine Workers of the Witwatersrand Goldfields—This is a bacteriological and epidemiological study. In the mines, conditions of work differ from section to section and from shaft to shaft, while there is, in addition, a well recognized racial or tribal susceptibility to respiratory infections among the natives, pneumonia in the recruits from the more tropical regions being greater than in those from South Africa. In 1929, the average monthly death rate from pneumonia, in a population of some 200,000 natives employed on mines, was 0.28 per 1,000. Nearly half of all deaths was due to diseases of the respiratory tract (other than silicosis and tuberculosis), and pneumonia was responsible for a third of the total mortality from disease.

Ceaseless effort in reducing pneumonia has proceeded since 1907 in the matter of improvements in mining and housing conditions and in the use of prophylactic pneumococcal vaccination, with a large measure of success so that the mortality rate from lobar pneumonia of 12 per 1,000 per annum in 1907 was only 3.36 in 1929, a reduction of about 75 per cent. Sir Almroth Wright and his coworkers began the prophylactic immunizations in 1911 and 1912, while Lister succeeded in classifying the types of pneumococcus responsible in 1914, and in introducing mass inoculation experiments in 1916. The incidence and mortality rates in lobar pneumonia were definitely and markedly reduced in the mines where these measures were used, including open workings as well as those underground. In 1917, mass inoculation of nearly all the native mine workers on the Witwatersrand was established as a routine.

(A considerable discussion on the bacteriological aspects and seasonal incidence of pneumonia, differences in local mining communities, and discussion of prophylaxis by vaccine follows, accompanied by tables and charts.)

It is concluded from all of the evidences gathered that a modified form of the one-time classical lobar pneumonia occurs frequently now. In this type of case there is a varied bacterial flora with or without the pneumococcus, and against this form the polyvalent pneumococcal vaccine is to a large extent

ineffective. The two peaks of high mortality occur in the winter and spring, apparently a different bacterial flora being present in each. From the constant change in the strain responsible there is need for periodically altering the bacterial elements of the prophylactic vaccine used against pneumonia, as well as to study the different strains in different localities.—David Ordman, *J. Med. Assn.* of South Africa, 5: 108–116 (Feb. 28), 1931. E. R. H.

(The above abstract should be compared with that which follows.)

In medical circles on the Rand there are conflicting views on the subject of pneumonia among mine workers. For years a system of prophylactic vaccination has been followed, but now it has been alleged to be of little value. Vaccination was almost universal on the Rand from 1917 to 1927, but today it is no longer so general, as many mine medical officers believe that vaccine prophylaxis is not a protection against the disease, although Sir Spencer Lister, who introduced the procedure, still does not hold this view. It is claimed that there are some discrepancies in diagnosing while no classification has been generally accepted.

The theory that pneumonia has changed its character on the Reef during the last 10 years is one that seems to be possible, but there is no evidence in favor of it. Mutability in the pneumococcus is of course known, but its extent and significance are little known.

An interesting fact is that although the incidence of the disease among mine natives appears to be high, the case mortality is decidedly low. This raises the suspicion that many cases of pneumonia are not really pneumonia but acute bronchitis. On the Rand the case mortality is 11; in Europe and America it is at least double that figure for patients of the same age as the average mine operative.

—Cape Town Letter, *J. A. M. A.*, 97, 16: 1164–1165 (Oct. 17), 1931. E. R. H.

Silicosis in South Africa—This 44-page bulletin reprinted from the *Proceedings of the Transvaal Mine Medical Officers Association* held at Johannesburg, October 23, 1930, contains 3 papers by as many different authors, accompanied by 32 pages of half-tone plates.

The first paper by F. W. Simson, Department of Pathology, South African Institute for Medical Research, Johannesburg, is entitled "The Histo-Pathology of Silicosis," and considers the essential anatomy of the lungs, the lymphatic apparatus involved in silicosis, the relative changes as the result of dust inhalation, i.e., early reactive, the silicotic islet of non-infective types, and reactions to "infective silicosis."

The second paper is by A. Sutherland Strachan of the same department and is entitled "The Pathological Anatomy of Silicosis," the sub-headings being: Changes in the root glands, changes in the pleurae, changes in the lung substance, silicosis of "simple type," silicosis of the "infective type," and complications.

The third paper is by L. G. Irvine, Chairman of the Miners' Phthisis Medical Bureau, Johannesburg, and is entitled "The Correlation of the Pathology, Radiology and Symptomatology of Silicosis," the sub-headings being: Criteria of diagnosis, some preliminary considerations in the pathological diagnosis of silicosis, occupation of the lung by dust, terminology adopted under the Miners' Phthisis Act, silicosis—the "simple type," early stages, later stages, the "infective type," and tuberculosis with silicosis. Then follows a classification of radiographs adopted by the Medical Bureau and their interpretation including the blank to be used for reporting X-ray findings in various stages with cross-references to the accompanying plates, also a great deal of descriptive matter regarding the radiographs reproduced.

Dr. Irvine likewise indicates the radiographic technic employed at the Medical Bureau, the legal aspect, incidence, and prognosis in cases of silicosis, with some comparative data for European and native mine laborers.

E. R. H.

Safety and Health in Tunnel and Caisson Work—Two tables show the compensation statistics for tunnels, shafts, subways, and caissons, showing that caisson disease appears to be the most prominent and serious cause of accidents.

The general discussion covers in a code manner, supervision, and personnel, guarding machinery, fire protection, sanitation (wash houses, lockers, bathing and toilet facilities, drinking water, etc.), explosives, the matter of hand tools, electrical installations, haulage, and first aid, also the reporting and investigating of accidents and bulletin board services.

Among the safety features, four paragraphs are given to ventilation with significance standards as follows:

	Per cent
Carbon monoxide to be less than	.005
Carbon dioxide to be less than	1.00
Methane to be less than	.25
Hydrogen sulphide to be less than	.001
Oxygen to be more than	19.00

"Work in compressed air" considers the definition, cause and treatment of compressed air illness, while special stress is laid upon requirements for compressed air workers, their selections, health regulations, health suggestions, etc.

A section is devoted to compressed air equipment and other sections to air pressure, compression, decompression, hours of labor, communication, sanitation and ventilation, etc. A convenient table shows relation between pressure and hours of work to be permitted. Seventeen illustrations accompany.—National Safety Council, Chicago, *Industrial Safety Series* No. Con.-2, 12 pp., 1931. E. R. H.

Correspondence Committee on Industrial Hygiene, International Labour Office—A number of members of this committee met at the headquarters in Geneva, July 30 to August 1, 1931, including representatives of some dozen countries. Proposals were submitted for the drafting of international relations to prevent anthrax infections in industries other than that of hides and skins, mainly referring to the handling of bones, hoofs, and horns.

The risks of lead poisoning in the process of enameling by powdered lead on cast iron were discussed, also the dangers of toxic solvents. The meeting recommended that all cases of poisoning occurring in the chemical industry be notified to the International Labour Office, which should hand on the information to interested parties. A program of research into the dangers of solvents was drawn up.

Every country was recommended to draw up regulations governing work in accumulator (storage battery) factories.

The conditions of work of married women were discussed and an approval was made to a proposal submitted by the Belgian Government to undertake an inquiry into this question in all of its aspects.

The meeting considered the conclusions of the International Silicosis Conference held at Johannesburg in 1930 and made suggestions regarding further research work on silicosis.—International Labour Office (League of Nations), *Indust. & Labour Inf.*, XXXIX, 6: 181 (Aug. 10), 1931. E. R. H.

CHILD HYGIENE

THE most complete and unique report which has come to our attention recently is the annual report of the Los Angeles County Health Department for the fiscal year 1930–1931. It covers in detail all the work undertaken and accomplished, together with a complete financial statement including source of income and expenditures. The report is especially informative because it has clear-cut descriptions of each phase of the work. It contains excellent tables and charts which are easily read.

Dr. J. L. Pomeroy, the County Health Officer, states, "The year 1930–1931 will go down in history as one of the most healthful on record." The death rate was 10.4 per 1,000, compared with the rate for the United States as a whole of 11.3, and that for the State of California of 11.5.

The report reveals great progress in the control of many infectious diseases, especially those of childhood, and a marked reduction in deaths of infants under 1 year of age. It states the most outstanding achievement of the department has been the great reduction in deaths of children during the first year of life.

In spite of the fact that the Mexican babies make up 31 per cent of the total, the results of our health education work have been most successful. A series of charts is shown giving graphically this remarkable story. We do not believe any district in the country can show a more striking picture. The charts conclusively demonstrate the soundness of our program and the returns of the investment of taxpayers' money.

The infant mortality rate in Los Angeles County for 1930 was 46 per 1,000 as against a state rate of 57 and a Los Angeles City rate of 62. Thus while the rate was 92 in Los Angeles County for 1916, and the state rate and City of Los Angeles rate was 73, due to more intensive and efficient work of the County Health Department we have reduced our rates lower than either Los Angeles City or the State of California. These reductions have been accomplished against the great obstacles of a large, scattered population, a very high Mexican population and the almost total absence of the many welfare, health and other social organizations so helpful in a large city.

The reduction effected shows for all races and all causes. Thus congenital malformations have been reduced nearly 6 per cent, as reflected by a marked reduction of deaths during the first month from 33 per 1,000 to 22 per 1,000. Gastrointestinal deaths have been reduced by over 50 per cent, falling from 22.4 to 10.0 per 1,000 from 1916 to 1930. Respiratory diseases dropped 40 per cent, falling from 15 to 9 per 1,000; communicable diseases declined from 14 to 2 per 1,000, a fall of about 600 per cent. All other causes fell from 10 to 8 per 1,000, a reduction of about 20 per cent. The grand total reduction has been 50 per cent from all causes.

The natural question to ask is, "How have such successful results been obtained?" This has been due largely to the excellent organization and efficient management of the Los Angeles County Health Department over 15 years. During that time the County Health Officer has developed gradually an organization which covers the health needs of the entire county in such a manner that each locality is given special attention. There are 12 district health officers coöperating with 35 cities and rural parts of the county.

The maternal and child health functions have been given special attention. Under the capable direction of Dr. Anna E. Rude this phase of the work has advanced remarkably during the last 3 or 4 years. Last year the Bureau

of Maternal and Child Hygiene " made up 15.8 per cent of the costs of salaries and mileage, 12.2 per cent of the costs of maintenance and operation, and about 11 per cent of the total per capita costs. A total of 19.1 cents per capita was expended on this function."

The total per capita expenditures for health services in the Los Angeles County Health Department for the fiscal year 1930–1931 was $1,218,064 or $1.72 per capita.

There are now 87 Child Hygiene Conferences throughout the county, at which mothers are free to bring their babies for advice to keep them well. Nearly 65 per cent of the mothers are reached at some time during the year. At these conferences the rules of hygiene for childhood are taught and demonstrated, special classes are held on nutrition and foods and health habit training, and the mothers are urged to keep the child under the observance of the family physician at the approach of the slightest illness. Babies are also vaccinated against diphtheria and smallpox. Nurses visit the homes to see that the rules are carried out, and to check up on sanitary conditions. Special work is done with the Mexican and Japanese, particularly adapted to their problems. Coördination is secured with the sanitary department so that local conditions affecting milk, water supply, foods and various other conditions affecting child life are corrected. Much literature in various languages is distributed, and lectures are given at Women's Clubs, P. T. A., and other meetings of women.

Sick babies are not taken care of by the Health Department, but are referred to private physicians and clinics. Undoubtedly our campaign for pure, wholesome milk has helped materially to lower the infant mortality, as well as our extremely favorable climate with its abundant sunshine.

It must be understood that the Child Hygiene Conferences are purely to give educational advice on hygiene and care to the mothers and not for treatment of sick children.

Of 65 families attending a Child Hygiene Conference, 43 had never consulted a child specialist before coming to the clinic. Thirty-four had no regular family physician. Thirty-two, or about 50 per cent, claimed they could call a doctor if the child was sick. About 55 per cent claimed they absolutely could not afford to pay a private physician for advice on well babies. Only 15 per cent claimed they could afford to take their baby to a private physician if the Baby Welfare Work was discontinued.

From these results it is quite apparent that only one-half of the families have a regular physician, and only a small percentage are able to pay for well baby advice. Most would call a doctor when the baby is sick, but certainly the economic conditions have placed most persons at a serious disadvantage at present.

The maternal mortality death rate for Los Angeles County Health Department area has shown a steady reduction over a 4-year period, from 4.9 per 1,000 live births in 1927 to 3.6 in 1930.

Covering an 8-year period, from 1923 to 1930 inclusive, infant deaths due to congenital causes have been more than cut in half—a reduction of 56.7 per cent. The significance of these figures becomes apparent when it is remembered that " prenatal care " in the form of prenatal conferences had its inception into the County Health Department plan in 1923. There are 16 conferences in all. 1,252 cases or 11 per cent of total births were registered in these conferences this last year.

The annual figures indicate that 61.8 per cent of the total county births attend Child Hygiene Conferences. This is practically the same percentage as last year (61.9). . . . A total of 87 Child Hygiene Conferences have been conducted in 60 different localities in the county. This is an increase of 7 conferences over the previous year.

Work is also carried on for the preschool child. The Bureau of Maternal and Child Hygiene has coöperated with the County Tuberculosis Association in conducting a Summer Health School for malnourished and undernourished children. This school had an intensive course in health habits, for 6 to 8 weeks, carried on in a school building. This plan reached the parents and helped to better home conditions. For 6 weeks each summer about 500 under par children received this training. The County Tuberculosis Association deserves great credit for supplementing the work of the Health Department. Besides helping toward salaries of some of the workers,

this organization is carrying on a nutrition program in the schools, supervising school cafeterias, doing health education work in clinics and schools, and assisting in publicity.

In connection with the County Tuberculosis Association we drew up a plan 2 years ago to focus our efforts on early diagnosis, and especially to work with the child. The program of prevention calls for—

1. Supervision of all contacts, or persons who have been associated with or lived with a person who has active tuberculosis
2. Tuberculin testing of all children who are contacts, or undernourished
3. X-ray examination of the chest of all positive reacting persons
4. Physical examination of the above
5. Adequate nutritional, health education, and focusing of all types of hygiene on the infected person to keep him well

Children's Diseases—Every American reader of the *British Journal of Diseases of Children* would do well to read 3 articles which appear in the July–September, 1931, issue:

1. Neurosis in Childhood—by I. M. Allen, M.D.N.Z., M.R.C.P., London
2. On the Incidence of Rheumatic Fever—Francis Bach, M.A., M.D., Oxon.
3. Thrombo-Phlebitis Migrans Complicating Scarlet Fever—J. B. Ellison, M.A., M.D., D.P.H.

Two papers bear directly upon problems with which we are struggling today in the public health field. That by Dr. Allen is based upon a careful study of 169 consecutive cases of neuroses in childhood which the author presumably has investigated. The clinical and the most important psychopathic and neuropathic features of the cases are discussed. These are divided into

1. The factors which make the child less able to face his environment and difficulties.
2. The factors which appear to excite the symptoms of a neurosis in the child at various ages.

The author feels that the cases in the first group are "built up in the majority of cases around the mother-child relationships." Treatment is considered under 3 main heads:

(*a*) *Prophylactic*—Adequate training of the mother of a first child in the principle of child welfare is essential. Correct training of the child from his earliest days in regular habits and adaptation to influences external to himself. . . .

(*b*) *Symptomatic*—The child is taught to control the particular symptoms which are causing him most trouble.

(*c*) *Psychological*—In every case it is necessary to readjust the individual attitude and the family, social, and school environment as far as possible, so that the child may be better prepared to deal with situations which arise later.

Dr. Bach, in the beginning of his article, states:

Included in the term "the rheumatic diseases" are a variety of conditions, the majority of which are ill defined, and of which our knowledge is limited. Rheumatic fever, juvenile rheumatism, rheumatic heart disease, and chorea are clinical manifestations of a specific disease.

Rheumatismus infectiosus specificus is an endemic, systemic disease whose definite cause is unknown. Rheumatic fever, according to Dr. Bach, is comparable in its clinical manifestations with syphilis and tuberculosis. He briefly describes its distribution in a number of countries, including Great Britain, Canada, the New England States, Scandinavian countries, and others. The recent study by Coburn in New York is mentioned. The importance of hereditary, sociological, and geographical factors is stressed. He concludes,

It is possible that the "rheumatic state" or diathesis is dependent on certain familial and environmental factors, such as have been mentioned, and that in these susceptible persons a certain organism, possibly *Streptococcus hemolyticus*, may set up a tissue reaction, which manifests itself as the clinical picture of

"rheumatismus infectiosus specificus" or rheumatic fever.

Dr. Ellison records two instructive cases in which inflammation of the veins appears as a complication of scarlet fever. In the "migrans" type of this disease the following criterions may be applied:

1. The lesions are disseminated in time and space, small lengths of superficial veins being usually first attacked.
2. Visceral phlebitis is to be expected, commonly in the veins of the lungs or abdominal viscera, more rarely in the heart or brain.
3. Although convalescence may be prolonged and relapses are to be anticipated, the prognosis is generally favorable.

PUBLIC HEALTH NURSING

A Joint Program Between a City Board of Health and a Visiting Nurse Association—In planning for a broad community public health nursing program official and private agencies should work together. It is sound for them to have a joint public health nursing service, for the important thing is for the community to be adequately served by one group of public health nurses. This plan calls for a nurse administrator whose business it is to see that the staff nurses have technical nursing ability, that there is a staff education program for them, and that they receive special as well as general supervision, to insure high standards.

Here are some advantages of joint administration of public health nursing between official and unofficial agencies:

It prevents duplication.

It is more economical.

It avoids intrusion of the home by a variety of workers.

Patients, private physicians and nurses like it.

Health education is advanced because bedside care furnishes an unusual entree into the families' confidence.

The health officer can depend upon the same nurses to interpret the rules and regulations of the board of health.

In Denver a smallpox epidemic in 1922 made the City Department of Health realize the value of a visiting nurse association and in 1924 the board started to subsidize the Visiting Nurse Association in an expansion of its communicable disease program. In 1928 the American Public Health Association, after making an appraisal of Denver's health activities, made the following recommendations:

That the nursing service of Denver be centralized in two main divisions:

(*a*) School and preschool nursing service (public and private schools). Private school work to be financed by the City Health Department but all school nursing to be under the supervision of one organization.

(*b*) Generalized public health nursing service (Health Department and Visiting Nurse Association).

That educational and preventive work be financed by the Health Department, bedside care financed by the Visiting Nurse Association.

That the Superintendent of Nurses be responsible to the Health Officer for Health Department work and to the Visiting Nurse Association Board for visiting nurse work.

That any new proposition relating to public health nursing should be considered by a group composed of representatives of the public health nursing organizations.

As a result of these recommendations, today the Denver visiting nurses visit every home in which a communicable disease occurs. Where nursing care is given, the cost is met by the Visiting Nurse Association. All educational work done by the nurses on these cases (1 visit to each minor, 2 to each major communicable disease) is financed by the health department.

The assistant superintendent of the Visiting Nurse Association makes a daily visit to the offices of the Department of Health and brings back all cases reported. She interprets the official and unofficial organizations to each other, and acts as a special supervisor of communicable disease work. In 1930 the Denver City and County Medical Society officially approved of this joint work.

Because of its charter the Denver Board of Education could not administer the health work in the private and parochial schools, so the Department of Health pays the Visiting Nurse Association to do this work.

All these joint plans entailed a great deal of work between the Visiting Nurse Association board and the Denver city officials. The Visiting Nurse Association came to lean so heavily on the manager of health for the city that he was asked to become a member of the Board of Directors for the Visiting Nurse Association.

This joint service in Denver is really just in its infancy, but since sound ground work has been laid the organization probably "would have little to fear from change of city administration, because, in the final analysis, the political forces crave to please the voters."—Kathryn Schulken, Health Department Nursing by a Visiting Nurse Association, *Pub. Health Nurs.*, XXIII, 12: 589–592 (Dec.), 1931.

The League of Nations Has an American Public Health Nurse on its Staff—Hazel Avis Goff, R.N., has been assigned to the Health Section of the League of Nations as adviser in matters affecting her profession which have to do with League projects in many quarters of the globe.

An early task Miss Goff has before her is the preparation of a public health survey to set before the League Health Section to serve as a guide for its activities in this connection. Her general designation is field secretary for the League of Nations.

Christine Reiman, Executive Secretary of the Internal Council of Nurses, composed of the national nurse associations of 23 affiliated countries and the associate national representatives of 9 other countries, has her headquarters in Geneva. Until this time the Health Section of the League has consulted her freely about various phases of health education and schools of nursing. This has taken up a great deal of her time, and there is a growing need for field work. Miss Goff, who is a nurse well experienced in all phases of nursing, has been employed through the generosity of a philanthropic anonymous nurse in the United States.

The director of the American Red Cross Nursing Service chose Miss Goff from the long list of those who had seen foreign service under the Red Cross. She is a graduate of the Massachusetts General Hospital School of Nursing, Boston, and had had experience in several nursing schools in the United States when she was selected by the American Red Cross to direct the school of nursing the Red Cross was sponsoring in Sophia, Bulgaria. Here she was successful in founding a school which after a few years could be carried on under the direction of its graduates. After this she was field director on the nursing staff of the European office of the Rockefeller Foundation. She has recently received her B.S. degree in Public Health Nursing Administration from Teachers' College, Columbia University, New York.

Miss Goff will work directly under the Medical Director of the Health Section of the League and will be on an equal footing with her medical associates working under the director.

REFERENCES

American Nurse Advisor to the League of Nations, *Red Cross Courier*, XI, 5: 522 (Nov.), 1931.

International Nursing News, *Brit. J. Nurs.*, 79, 1960: 306 (Nov.), 1931.

Do **Nurses Know Mental Hygiene?**—Curiosity, keen powers of observation, and critical evaluation are three qualities vitally important in the work of the public health nurse. Yet her nursing school training seldom develops these because the routine rules of the hospital are apt to stultify her ability to plan and manage and make her dependent upon a set standard that does not require thinking. When she gets out into a public health district she is bewildered when she finds that each family and even each individual has different hygiene requirements. For one public health nurse who is wise in dealing with a family situation because she understands the underlying emotional implications, there are probably ten who "scold or dictate or mildly threaten, or apply some set formula, or agree with the patient because it is the easiest road to take, or give up the family in despair with the complaint that they are uncoöperative."

After being trained to take orders in the hospital, the freedom she finds in public health nursing makes the nurse's sense of importance go to her head. She uses on the patient the methods that have been used on her and orders him to do this and that "with a considerable air of omniscience and authority, without stooping to explain." In the hospital when the patient is in bed and unable to rebel this method may seem to work, but not in the home where the patient does not have to obey. Here, whatever is done has to have the approval of the family "from the dog up." "The visiting nurse who has not learned the technic of making friends with the watch-dog never even gets inside the door of many of her homes."

In the public health field the nurse has to learn that maladjusted personalities and emotional strains are often as potent in causing illness as typhoid, pneumonia, cardiac disease, arthritis, etc. A well known cardiac specialist has said that 50 per cent of the problems in cardiacs is emotional, a great stomach specialist says that 50 per cent of the problems in gastroenteritis is emotional, and a specialist in internal medicine says that 40 per cent of the problems in medical patients is psychological, instead of physical.

There are many nurses in executive and supervisory positions who know the latest scientific methods of doing public health nursing "but they haven't learned the art of working with other people." They are now dealing with physicians, social workers, teachers, etc., whose coöperation they have to win by the "most delicate arts of understanding sympathy and persuasion," not by the authority of rank. Professional relationships get in a hopeless jam and they leave one position for another. Many of their difficulties are due to psychic injuries in childhood, but it may be that their hospital experience has put the final touch to their maladjustment.

A good psychiatric worker should be made a member of the faculty of every school of nursing. Her work could be divided between two fields, the faculty of the school and its students.

She could assist the faculty in the following ways:

Help them to understand themselves and the student nurses as individuals.

Help them learn how to lead. Most people learn to lead through training as much as through intuition.

Help them to learn how to teach so as to awaken curiosity, stimulate thought and develop analysis and judgment.

Help them to study the habits and attitudes which tend to cripple, and discover ways of compensating for them.

She could help student nurses in the following ways:

Teach them to understand human nature, using the hospital for this purpose.

Teach the relation of the mind to the body; of the emotions on the functioning of the body.

Increase their insight through individual consultations.

It may be that the majority of student nurses would profit more by a study of the more or less normal problems of personality than by the study of outright mental disease, though, of course, the nurses who wish to specialize in psychiatric nursing would need experience in the psychiatric hospital and lectures in psychiatric nursing. Perhaps nursing schools would do better to teach the majority of student nurses mental hygiene rather than psychiatry. —Elizabeth Fox, The Nurse and Psychiatric Work, *Mid-Monthly Surv.*, Dec., 1931, pp. 307–308.

EDUCATION AND PUBLICITY*

Checking the Radio Audience—Desiring to know to what extent, if any, the health department radio program is worth while, a survey was made in May, 1931, to ascertain if possible how many listeners existed. This survey was conducted by instructing health department nurses, in making regular calls in homes in their districts for any purpose whatsoever, to put a question as to whether the family living there was listening with more or less regularity to the health department program. These homes were taken just as they came in the course of health department business with no selection whatsoever; hence they were scattered over the whole city and represented all types of people.

This survey was repeated in the first week of November, 1931, in order to ascertain what changes, if any, had occurred in the status of the radio program. It will be seen that the apparent drop between May and November is to be explained by items two and three of the tabulations. In each survey about the same number of homes were visited. In May 76.4 per cent were found to have radios while in November radios were found in only 58.7 per cent of the homes, and many homes were found without radio because of inability to buy batteries or tubes for old radio sets.

Since this survey represents only 6.9 per cent of the homes in Racine, it would seem reasonable to conclude that, even with liberal deduction for possible error, these listener ratios represent a worthwhile radio audience for our health message, and what is still more important, an audience that is growing.

	May	November
1. Number of homes at which nurses called	564	548
2. Homes without radio	133	226
3. Homes with radio	431	322
4. Homes in habit of listening to H. D. program	186	159
5. Homes not in habit of listening to H. D. program	245	163
6. Per cent of total homes listening	33.0	29.0
7. Per cent of total homes not listening	67.0	71.0
8. Per cent of homes with radio, listening	43.2	49.4
9. Per cent of homes with radio, not listening	56.8	50.6

The following preferences were expressed between various of our series of episodes:

Vacation series	26
Public health nursing	30
Scarlet fever and quarantine	26
Sanitation	15
Diphtheria prevention	32
Pre-school	20
Tuberculosis	12

—W. W. Bauer, M.D., Racine, Wis.

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

Tuberculosis Doesn't "Just Happen"—This title of a small folder is the keynote of the April, 1932, Early Diagnosis Campaign sponsored by tuberculosis associations. The carefully laid plans have included a variety of helps: printed matter, posters, lantern slides, motion pictures, electrotypes, and material to be adapted for state and local use.

Back of the popular material is a group of pamphlets for professional readers: health officer, social worker, public health nurse, and physician.

State associations will be the sources of supplies for the campaign. A list of what is being made available will be sent by the National Tuberculosis Association, 450 7th Ave., New York.

Publicity by Physicians—"Guided by the belief that the members of the medical profession," says the Medical Society of the County of New York and the New York Academy of Medicine, "and particularly members of these two organizations, are prompted by the desire to act in accordance with medical traditions and that code of ethics which, in its last analysis, has been laid down for the benefit of the public rather than the profession," the two bodies have issued Principles Governing Contact of Physicians with the Public Through the Press, Lecture Platform, Lay Periodicals and Radio, an 8-page pamphlet.

In considering the common avenues through which the profession and individual physicians may address the public, namely the press, the radio, the public platform and popular publications, we find three possible types of approach. These are publicity, propaganda, and public health education.

Publicity we witness in the medical world under two aspects. In one it gives due public notice of events which constitute legitimate news, such for example as the election of new officers in a medical organization; the opening of a new hospital; the award of a prize for distinction in medicine and the like. . . .

Propaganda has for its main objectives the arousing of public interest in supporting and acting on health matters. In propaganda, emphasis is placed on some matter of public health interest and only incidentally upon the physicians connected with it. . . .

Public Health Education differs from publicity and propaganda by the nature of its content. A statement, for example, that measles is a much neglected and dangerous disease made by Dr. Jones may serve as a typical example of a public health education message. Such a statement should not give special prominence to its maker. . . .

In broadcasting

The speaker's name may be given by the announcer without adorning and superlative references to his abilities or achievements. Dr. John Jones, Clinical Professor of Medicine at the X. Y. Z. University, will suffice as an introduction. Dr. John Jones, who is a practicing physician, should not be introduced as an internationally famous authority, etc. . . .

Health workers may well write for a copy to Medical Information Bureau, 2 East 103d St., New York. Use it as a guide in handling publicity when physicians serve the department or association.

What Departments Told the Public—Below are topics of recent press releases by state health departments. Do other departments issue mimeographed or printed releases to the newspapers?

Connecticut: "A Daily Food Plan Needed" (choice of food).

Detroit: "Prevalence of Certain Communicable Diseases"; "Trend of Infantile Death Rate in Detroit."

Iowa: "Ring-Worm"; "Lifeless Body" (carbon monoxide); "Needless Waste of Human Life" (homicides, accidents); "Christmas Seals."

Maryland: "Don't Broadcast Your Germs"; "Partnerships" (buyers of Christmas seals); "Take Care When You Skin or Handle the Meat of Wild Rabbits"; "Bad News and Good News" (diphtheria).

New York State: "How Can You Prove You Were Born?" (radio);

"Rickets" (radio); "What Is a Public Health Nurse?" (radio).

Oregon: "Pneumonia a Dangerous Contagious Disease"; "The Modern Health Officer"; "Child Hygiene."

U. S. Public Health Service: "Pellagra Preventive Value of Certain Canned Vegetables"; "Age and Sex Incidence of Influenza and Pneumonia"; "The Endocrines, Glands of Personality" (radio); "The Common Cold"; "Disease Reporting and Disease Prevention" (radio); "The Health of the School Child."

Team-work in Public Health Education—The development of "The Functions and Limitations of Government in Public Health Education" are traced by Dr. Allan J. McLaughlin up to and through the period when

> Health officers gave up the idea that all public health work could be done by personnel on the payroll of the health department. It was obvious that the education of individuals in personal hygiene and the securing of their voluntary help in preventing disease involved the participation of many agencies, official and unofficial, outside the health department.

With the growth of unofficial voluntary agencies

> The responsibility for the health of the people was still squarely placed upon the shoulders of the health officer, yet a large part of the work necessary to discharge his obligation had to be done by personnel not under his direct control.

Dr. McLaughlin raised the question: "What is public health education?"

> When a health administrator essays to answer this question he is appalled by its magnitude. There are many narrow definitions which may be given by health workers in their own special field. There are drives for specific purposes which are public health education in its best sense; but public health education as a whole is so complex and consists of so many independent efforts that its scope and potentialities are tremendous.

Following a discussion of the participation of federal, state and local agencies, the schools and colleges, Dr. McLaughlin concludes:

> The important thing for administrators to remember is that it matters little by whom the work is done, provided it is well done. Public health education has grown up in a haphazard manner, fostered by a score of agencies, official and unofficial. The time has arrived when the man charged with the responsibility for the health of all the people of a state—the State health officer—should take stock of what has been done and is being done by these diverse agencies. He should formulate with their help a comprehensive program to include all existing public health education activities and to expand the work or create new work so that the field may be as completely covered as possible.

All concerned with health education in or out of schools will wish to read the whole of this paper.—*Public Health Reports*, U. S. Public Health Service, Washington, Sept. 25, 1931. *Free.*

TIMELY TOPICS

"Why a Community Needs a Health Department," by John P. Koeher, M.D.—*Bulletin*, Milwaukee Health Dept., Nov., 1931.

"The New '18 Week Diet'"—*Everybody's Health* (Nov., 1931), St. Paul. "Adequate diet of meat and cereals and fruits and green vegetables and a quart of milk a day." *Sample free.*

A reminder of the wealth of material for press and house organ use which appears in the monthly issues of *Statistical Bulletin*, Metropolitan Life Ins. Co., New York. *Free.*

EXHIBITS

Making an exhibit eminently practical is described in *Quarterly Bulletin*, Frontier Nursing Service, Lexington, Ky., Autumn, 1931:

> One of the nurses at the Red Bird Center had a most interesting health booth, the first of its kind to be held in that county. It stood out from the other exhibits by virtue

of its clean white walls, the nurse in her white uniform, and the bright colored health posters. Inside was an almost life-size sanitary dirt toilet as approved by the Kentucky State Board of Health, a model fly- and snake-proof baby-bed, and a model milk safe. Over each one was a printed notice giving the exact cost of lumber, nails, labor, etc., involved in the construction. There was also a baby scales with a sign, "Let us weigh your baby," which attracted many people, and a model layette on display. Chairs were provided outside for those who wished to rest, thus affording the nurse ample opportunity for giving advice and health instruction in addition to the printed literature which was, of course, on hand for those who read. . . . It might almost be said that the hero of the occasion was the sanitary toilet which caused intense interest and was the subject of an article in the *Manchester Guardian*, the local newspaper, the following day.

"State Fair Better Babies Demonstrations," by A. E. Schweitzer, M.D. *Bulletin*, Indiana State Board of Health. Oct., 1931. Describes what the State Board has been doing since 1920.

"Suggestions for a Food Exhibit," by D. Stackhouse. *Practical Home Economics*, New York. Dec., 1931. For a high school class.

An account of the 1931 Berlin housing exhibit says: "The German flair for arranging educational exhibits was shown at its best." Analyzed, is not that "flair" made up largely of belief in popular education, appreciation of the effectiveness of graphic displays, and a great willingness to invest thought, money and technical skill in their preparation?

HONORABLE MENTION

To American National Red Cross: For detailed table of contents in annual report.

To Division of Infant and Child Hygiene, Indiana State Board of Health: For table of contents (called "Index") in annual report.

To Quebec Provincial Bureau of Health: For annual report with table of contents and table des matières.

To Superintendent of Health, Providence: For annual report with table of contents.

FOR TEACHER—FOR PUBLIC

Mental Hygiene in the Class Room (44 pp.); Behavior Problems of School Children (20 pp.). National Committee for Mental Hygiene, 450 7th Ave., New York. *15 cents each.* "That the teacher may realize that school is not simply a question of pushing children through the grades, but that it has all the diversity and importance of life itself, and that in helping children adjust to school she is helping them adjust to life."

From John Hancock Life Insurance Co., Boston (*free*):

Your Friend the Health Officer. 12 pp. For the public. Good copy for health officer to use. Good for private health workers to read.

Healthy Teeth. 12 pp. The minimum of what should be known.

CONTESTS

A contest for the best narrative report by a public health nurse is being conducted by *The Gleaner*, Bureau of Child Hygiene, Texas State Dept. of Health.

The Snappy Snapshot contest of *Public Health Nursing* (Nov. 11, 1931) resulted in two awards being given to "Weighing (Negro) Rural School Children" from Alabama, and "Houseboat Nursing" from West Virginia. The awards were based on "originality, interest and photoplay."

The Junior Red Cross seeks a new poster to be used in many countries. For details of the contest address Junior Red Cross, Washington, D. C., or national headquarters in your own country.

REPORTING

"Dumps," "Swine," "Garbage," and "Nuisances" are noted in the contents of an annual report. "Public Health Education" is not listed.

Two features of interpretation are found in the annual report of the American National Red Cross. Under the chief headings are from 2 to 6 lines, in italics, giving a brief outline of the scope of the service reported under that title. For example, under Home Hygiene and Care of the Sick:

> Practical instruction in personal health and home hygiene, prevention of disease, infant and child care, simple procedures in home care of the sick and in emergencies, and community health.

In the financial statement of the Red Cross are explanatory phrases which make the items more clear and less formal than is frequently the case.

Quebec Provincial Bureau of Health, Montreal, has a few extra sets of its reports from 1922 which it will supply upon request.

"The Year in Review," in *Public Health News* (Sept.–Oct., 1931), New Jersey Dept. of Health, gives a readable account in 9 pages of the highlights of the year. Frequent headings break the text and guide the reader.

Seven bright rose colored mimeographed sheets make up the annual report of Buffalo Tuberculosis Association, 708 Ellicott St. Plenty of center and side headings, with indentations, keep away any sense of heaviness. In making up the sheets a page of dispensary figures slipped in as the second page where it may discourage some readers from going further. A 3-page, yellow paper supplement reports on the medical work of the association. A photogravure page from *Buffalo Courier-Express* provides the picture element for this reporting project.

A mimeographed report can be accompanied by a page of pictures at low expense. Mounted on a sheet the size of the report copies can be reproduced by planagraph or similar process for about $5.00 for 1,000 copies of letter-size sheet. The editor will supply addresses.

NATIONAL CHILDREN'S BUREAU ACTIVITIES OF ITALY

THE National Children's Bureau of Italy, an official body maintained mostly by public funds, spent, in the years 1927 to 1930 inclusive, more than 315,000,000 lire ($16,569,000) on maternal and child welfare work. Of this sum 24,000,000 lire was used for teaching hygiene to the rural population. Nearly 400,000 expectant mothers and children were examined at the bureau's clinics; 1,800,000 children and 88,000 expectant mothers were examined and treated at its 59 traveling health centers, which so far have confined their activities to the rural districts of southern and central Italy. More than 165,000 children have been maintained by the bureau in sanitariums and other institutions for sick or defective children.

In addition to maintaining its own institutions, the bureau also subsidizes other institutions, public and private, and exercises supervision over them. Free lunch rooms for mothers and children and free maternity homes are also maintained. Financial aid to parents and to unmarried mothers is provided. Altogether the bureau extended aid to more than 766,000 persons, exclusive of the mothers and children examined at the traveling health centers.

During the years 1927 to 1930 more than 3,000 inspections were made of 2,800 institutions, resulting in general hygiene improvements. Under the auspices of the bureau a study was recently made of the diets in the various children's institutions, and standard dietaries were introduced into the institutions financially aided by the bureau. —*Maternità ed Infanzia,* Rome, Sept., 1931, p. 881.

BOOKS AND REPORTS

The History of Medicine—*By Bernard Dawson, M.D. London: H. K. Lewis & Co., Ltd.*, 1931. 160 pp. Price, $2.50.

This book is made up of lectures delivered to junior medical students of Adelaide University. In the brief space of some 160 pages, it gives a concise and accurate history of medicine from the earliest days down to the time of Lister and Pasteur. It is written in an interesting fashion and will undoubtedly fulfil its object of stimulating students to further studies along historical lines. We could wish that more space had been given to modern medicine, though we believe it wise to limit personal histories, at least, to those who have passed away.

There are a few errors of fact, but none of any great consequence have come to our attention. Altogether, we believe it to be the best book of its type which we have seen.

MAZŸCK P. RAVENEL

Science in Action—*By Edward R. Weidlein and William A. Hamor. New York: McGraw-Hill*, 1931. 310 pp. Price, $3.00.

With a sub-title of "A Sketch of the Value of Scientific Research in American Industries," the publishers present an interesting and readable book telling the story of the growth of industrial research in the United States. The authors hail from the Mellon Institute of Industrial Research, Pittsburgh, Pa., and for 15 years have been popularizing science through lectures and articles.

The book attempts to explain scientific management of industries, including correct business administration and sound science in opposition to empiricism, and to unfold something of the real magnitude of these present-day undertakings and their immense economic value. The discussion is divided into an historical or "groundwork" introduction, followed by 6 major parts, or divisions, respecting research itself, human welfare, technology, management and rationalization, methods and men.

The sources basic to industrial research are considered to be mathematics, physics, chemistry, geology, biology, psychology, economics and engineering. The spirit of such research is sincerely scientific and open-minded with the constant aim of discovering the truth and its application to human need. The latter is broadly discussed, including the relation to medicine, especially pharmacology, to labor, and to various international questions, with citation of the names of many corporations and individuals—so that a name index is provided in addition to a thoroughly complete subject index. In this connection those who are more particularly interested in the personnel of given research staffs and the exact research work carried on by each should consult, further, *Bulletin No. 81* of the National Research Council, by C. J. West and C. Hull—*Industrial Research Laboratories in the United States*, 4th ed., 1931.

An engaging philosophy of purpose and enthusiasm to urge on the accomplishments which must come to pass, pervades the present work. All interested in research in any way will enjoy it thoroughly, as it is fruitful of ideas and encouragement. Among other things stress is placed upon the excellence of equipment necessary to discover the many things now coming to

light which would have been impossible because of this lack in so recent a period even as that of Pasteur and Ehrlich. Today, research is needed to determine the medical possibilities alone of some 260,000 organic compounds.

Some statements occur which, of course, not all will agree with, such as "fatal issues now seldom occur" (in diabetes as the result of the discovery of insulin, p. 88), and the understatement that the vitamin "needs of the body are supplied largely by milk, butter, green vegetables and fruits" (p. 89).

Illustrations and a few tables accompany, while the general set-up of the work is all that good printing and publishing imply. EMERY R. HAYHURST

Personal Hygiene Applied—*By Jesse Feiring Williams, M.D. (4th ed.) Philadelphia: Saunders,* 1931. 520 pp. Price, $2.25.

Since its appearance in 1922, this work has undergone numerous reprintings, and has now reached its fourth edition. This is evidence enough to show it has met with favor and has filled a need felt by teachers. While the present edition has been brought up to date, the chief new feature is the introduction of "Questions and Exercises" at the end of each chapter.

The book can be commended as one of the very best of its type.

MAZŸCK P. RAVENEL

Common Pests. How to Control Some of the Pests That Affect Man's Health, Happiness and Welfare—*By Rennie W. Doane. Springfield: Thomas,* 1931. 398 pp. Price, $4.00.

This book, so written that it is understandable to the public as well as to physicians and health officers, is an account of common pests. It does not pretend to give anything original, but is a discussion in a single volume of the more important groups of pests which directly or indirectly affect man and animal injuriously. Only the more common species of each group are treated. The discussions are brief, but clear, accurate, and sufficient for the general reader.

The illustrations are exceptionally good, well chosen, and many of them original. The reading of this book should do much to dispel the common dread in which spiders, scorpions, etc., are held by the public. We wish for it a wide circulation.

MAZŸCK P. RAVENEL

A Text-Book of Oral Pathology—*For Students and Practitioners of Dentistry—By Russell W. Bunting, D.D.S. Philadelphia: Lea & Febiger,* 1931. 495 pp. Price, $7.00.

While there is not a chapter in this excellent book that is not of interest and does not contain material of value, two especially will appeal to the public health worker and are suitable for review in a journal on public health—those on dental caries and pyorrhea alveolaris. These are two vexed questions. Even the youngest of us can remember when the endameba buccalis was thought to be the cause of pyorrhea and emetin was given wholesale as an amebacide, until it was shown that the organism certainly had nothing to do with the disease and was found in the mouths of healthy people.

It may be said that in spite of the enormous amount of work which has been done upon it, it is still a puzzle. Two theories held have been that (1) it was constitutional, (2) that it was local. The author points out that the lesions are almost invariably accompanied by a local inflammatory process and that treatment of these as well as occlusal stresses often entirely relieve the condition and cures it. He inclines to the idea that both factors are involved and that the disease is the product of

both local and systemic disturbances. While discussing the various bacteriological findings, he apparently does not accord a great deal of importance to them as causative factors. He points out that caries and pyorrhea do not flourish in the same mouth, holding that the former is due to acid forming organisms present in the oral flora, while in the other, proteolytic types of microorganisms find a habitat in the soft tissue about the teeth, producing their characteristic effects. He leans strongly to the idea that caries is due to the acidophilus and has produced the disease, apparently typical, both in the test tube and in the living being. In more than 2,000 cases he has found the acidophilus practically always, while it was absent from healthy mouths. Consequently, he regards caries as an infective disease. He recognizes the difficulty of explaining why these aciduric processes prevail in one mouth and not another.

He also recognizes the necessity of good food during the formative period, but does not go so far as many of those who are enthusiastic over the effect of the diet.

The book is abundantly and excellently illustrated. Certain chapters have been written by specialists, though the bulk of the book is due to the author. Altogether, it is one of the most thoughtful, exact and informative books on the subject which it has been our fortune to read. The printing and make-up are excellent though unfortunately it is on very heavy paper.

MAZYCK P. RAVENEL

Nineteenth Annual Report of the International Association of Dairy and Milk Inspectors.

This, the 19th Annual Report of the association, includes the constitution, by-laws, program of the 19th Annual Convention, reports of committees, and papers read at the convention which was held in Cleveland, O., October 22–24, 1930.

The many important and interesting papers read included "Those on bacteriological and laboratory studies and procedure plant studies, including time and temperature, inspection of plants, cleaning and sterilization of equipment, flavors in milk, milk control from farm to table, coöperation problems between inspectors and plants and opportunities in the dairy industry. Other papers included a survey of New York State milk and cream supply, one on undulant fever, and a report on such activities of the International Association of Milk Dealers as would be of interest to this association. Every paper had something to offer to the milk industry in general and the report is of particular interest to every dairy and milk inspector as well as public health official.

V. B. L.

Annals of the Pickett-Thomson Research Laboratory. Volume VII. The Pathogenic Streptotocci. The Rôle of Streptococci in Erysipelas, Skin Diseases and Measles —*Baltimore: Williams & Wilkins*, 1931. Price, $10.00.

The style of the three monographs in this volume is essentially the same as that of the preceding five on the streptococci. The aim is to present a complete survey of researches recorded in the literature, to which the authors have added their own findings as to the value of Crowe's medium in the differentiation of various species of streptococci, together with an extensive series of microphotographs. Since variation in the moisture content, etc., of Crowe's medium causes variation in colony form, the difficulty with this method is apparent.

The monographs are devoted to the rôle of streptococci in erysipelas, skin diseases and measles. *S. erysipelatis* is recognizable as a distinct species of he-

molytic streptococcus by means of an iodine test of colonies grown on Crowe's medium, sugar fermentation tests, serological and bacteriophage tests. It is thus the specific infectious agent in erysipelas. The confusion between *S. pyogenes* and *S. erysipelatis* as the causative agent may arise because of its ubiquity, the fact of a secondary infection in the disease, as well as the possibility that there are varieties of streptococci which lie intermediate between the two.

The survey of the researches on the etiology of skin diseases reveals that in many cases the problems remain unsolved. This is probably due, at least in part, to the difficulty in cultural methods. The chapter on selective methods of cultivating streptococci from the skin should assist in further researches in this field.

The authors summarize the results of researches on the etiology of measles as follows: "It would appear that the cause of measles has not yet been discovered, and it seems likely that the disease is caused by an invisible noncultivable filter-passing virus" (p. 384). They, however, state that further researches are necessary before the organism of Caronia, a specific streptococcus, and the pleomorphic organism described by themselves can be disregarded. Their own researches are presented and furnish material for interesting speculation.

To each monograph is appended the bibliography and photographs of organisms and colonies.

This volume is another valuable asset to all persons interested particularly in the research aspects of the streptococci. Excellent organization of material renders the use of the volume easy. The index of each monograph is complete. The volume abounds both in facts and problems still unsolved in all phases—bacteriological, immunological, epidemiological, etc.—of the diseases discussed. ESTHER W. STEARN

Confessio Medici—*By Stephen Paget, F.R.C.S. New York: Macmillan,* 1931. Price, $2.00.

This delightful series of essays needs neither criticism nor commendation. It has been before the profession and public for nearly a generation, and is familiar to all sincere readers. To the older members of the profession, it needs no introduction, but we wish to commend it especially to those who have entered the profession in the last few years or who will enter it in the future.

The publishers have put it out in excellent style on mat paper and in clear type. There is no one who cannot get enjoyment and profit by reading these essays. MAZÝCK P. RAVENEL

The Lungs: and the Early Stages of Tuberculosis—*By Lawrason Brown, M.D., and Fred H. Heise, M.D. New York: Appleton,* 1931. 140 pp. Price, $1.50.

The volume is the latest addition to the Appleton Popular Health Books. It is comprehensive and compact, presenting in 140 pages much valuable information regarding the latest conception of the cause, prevalence, detection, prevention and treatment of tuberculosis.

The first chapter describes the anatomy and physiology of the lungs. The style is in some parts a trifle labored, due no doubt to the authors' desire to make certain necessarily technical information comprehensible to the lay reader. The book should number, among its most interested readers, nurses, students and tuberculosis patients. All lay readers will find it a valuable contribution to a subject of vital importance in this day of preventive medicine. The book contains a very good index. The prominent tuberculosis specialists who collaborated on the work need no introduction.

L. O'L.

The Family in the Present Social Order—*By Ruth Lindquist. Written and published with the coöperation of the American Home Economics Association. Chapel Hill: University of North Carolina Press,* 1931. 241 pp. Price, $2.50.

The factual data from which the observations and conclusions found in this book were made, were obtained through the questionnaire method. Information was obtained from the alumnae of two professional fraternities with the assistance of some of their close friends. An effort was made to secure, as far as possible, information of the more pertinent conditions that directly or indirectly affect the health and happiness of the home. This approach to an understanding of the problems presented by the family has considerable merit, for it discloses, to a very suggestive if not convincing degree, effects, not only of the material aspects such as income, living conditions, neighborhood and the like, but also of the spiritual or mental factors such as different philosophies of life, the effects of different social backgrounds, temperament, religious practice, and the like. The author has been very careful in her interpretations so that her conclusions are never extravagant.

There is an appreciation that the material collected is not entirely complete or far-reaching enough to explain all the conditions that tend to mould the life of the individual family. As the questionnaires were sent only to women the problems that the husband and father contributes to and those which he is also called upon to solve are necessarily not included. The problems more characteristic of the family belonging to a lower economic strata are naturally not brought to light, as a large per cent of those coöperating in this study had more than a high school education. Only 1.2 per cent had an income of less than $1,800 per year.

This study is in line with the general trend of thought today, that education, if its purpose is to prepare individuals for life, must include, in addition to the giving of facts, an understanding of oneself and of others, with some technic of making the necessary social and personal adjustments. There is abundant proof in the study that preparation for marriage is evidently a necessity.

This little volume has considerable merit and can be read with a great deal of profit by those contemplating marriage and wishing to have some knowledge and insight into the sphere of life they are contemplating entering; it also can be helpful to the professional worker who in any way comes in contact with family life and who is in a position to advise or otherwise help.

The book, itself, is very well written so that the reader finds himself taken along page after page due to the importance and challenge of the material and also because of the excellent way in which it is presented. There are two appendices. Appendix I is a statistical presentation of the three special groups in the study on the basis of the types of education and training the women possessed. Appendix II contains questionnaires. There is a selected bibliography that is very valuable.

FRANK J. O'BRIEN

School Nursing: A Contribution to Health Education—*By Mary Ella Chayer, R.N., B.S. Introduction by Katharine Tucker, R.N. New York: Putnam,* 1931. 292 pp. Price, $2.50.

At last we have a book which orients the public health nurse in relation to health education. Miss Chayer's combined training and experience qualify her to deal with this controversial subject. She writes from the standpoint of an educator as well as a public health nurse. The book is, therefore, specific as well as comprehensive; practical as well as philosophical. It has been ap-

parent for some time that the school nurse makes a distinct contribution to health education, and the author of this excellent volume tells us just why, when, and how.

> Two types of school nursing seem to be emerging—the health service type, which deals largely with the control of contagion and the correction of defects; and the health education type, which aims at the fullest development of the personality through supervision of the emotional and social aspects of health as well as of the physical. In the latter type, health service is solely a means to the end of health education.

The entire chapter on Principles of Education as Applied to the School Nurse is particularly timely. The individual needs of the school child are given due consideration, and the means of reaching the child through parental education and home nursing are discussed. Another chapter, which should prove helpful to school nurses, is on Relationships.

It is very encouraging to note the emphasis placed upon the proper training of the nurse for health education. The author contends that only nurses with adequate training in both the educational and public health fields should attempt to qualify as health educators or health coördinators.

The book is well printed, illustrated, and indexed, and contains a good working bibliography of books, pamphlets, and magazine articles.

RICHARD A. BOLT

Preparation of Scientific and Technical Papers—*By Sam F. Trelease and Emma Sarepta Yule. Baltimore: Williams & Wilkins,* 1930. 113 pp. Price, $1.50.

This is a reprint of the second edition. The pronounced success of the book has proved its value, and there is little to criticize.

We cannot quite understand the incompleteness of the lists of journals with abbreviations. Too many have been given to serve simply as examples, and not enough to cover the ground. For example, under Medicine, neither the *British Medical Journal* nor the *Lancet* is mentioned. Under Hygiene, the *American Journal of Public Health*, which we believe to be the oldest in existence, is not found. Many other omissions of journals which should be useful to scientific writers are noticed.

If it were not for the serious nature of the entire book, we would suspect the authors of a sly dig at scientific writers. On page 27, the specimen heading for a thesis given is "Cultivation of Coconuts," which might not be a bad name for this work. The printing and make-up are excellent, and it is a distinct addition to the armamentarium of both writers and editors.

MAZŸCK P. RAVENEL

Nutrition and Physical Fitness—*By L. Jean Bogert, Ph.D. Philadelphia: Saunders,* 1931. 540 pp. Price, $3.00.

This small book, discussing the nutritional needs of the body, chemistry of nutrition, planning of meals, and diets for special conditions, gives a large amount of useful information. A commendable portion of the chapter on fruits and vegetables describes the value of base forming foods; and that on the vitamins and mineral salts is well illustrated from articles by authorities on nutritional deficiencies. An outstanding feature is the discussion of meal planning, food economics, the effects of cooking, and fads and fallacies about food. The significance and treatment of overweight are given commendable attention, but very little is written about other phases of physical unfitness. An appendix contains some useful tables. The text is clear, concise, and well illustrated. The book should be of special interest to the laity, dietitians, nurses, and medical students.

FRANCIS L. BURNETT

Nucleic Acids—*By P. A. Levene and Lawrence W. Bass. New York: Chemical Catalog Co.*, 1931. 337 pp. Price, $4.50.

The interest that biologists have in the nucleic acids is obvious. Few of them, however, have the necessary training to make laboratory studies of these fundamental substances. On the biochemist and the organic chemist (if such a distinction is allowable) must fall the labor of investigation. The authors have given an unusually readable and logical account of the chemistry of these extremely complex organic compounds characterized as esters of phosphoric acid with an organic radicle "consisting of a sugar and a nitrogenous component which is a cyclic derivative of urea."

After a discussion of the sugars the reader is introduced to the imidines and imido esters, to the pyrimidines, the purine bases, the nucleosides, the nucleotides, and finally to the nucleic acids.

Even if the biologist has forgotten most of the complicated organic formulas which he might have known at one time, the book is well worth reading because of the impression that is left, although the formulas may rapidly disappear from the conscious mind.

The bibliographic references are extremely numerous so that those desiring to go further into the subjects discussed will have no difficulty in locating original material. Brief mention is made of the studies on nucleic acids of the tubercle bacillus. The authors have made a notable contribution.

JOHN F. NORTON

BOOKS RECEIVED

CONFESSIO MEDICI. By Stephen Paget. New York: Macmillan, 1931. 158 pp. Price, $2.00.

THE DOCTOR EXPLAINS. By Ralph H. Major. New York: Knopf, 1931. 277 pp. Price, $3.50.

EXAMINATION OF WATER. 6th ed. By William P. Mason and Arthur M. Buswell. New York: Wiley, 1931. 224 pp. Price, $3.00.

INDUSTRIAL HYGIENE FOR ENGINEERS AND MANAGERS. By Carey P. McCord. New York: Harper, 1931. 336 pp. Price, $5.00.

MEDICINE IN VIRGINIA IN THE EIGHTEENTH CENTURY. By Wyndham B. Blanton. Richmond: Garrett & Massie, 1931. 449 pp. Price, $7.50.

OFFICIAL AND TENTATIVE METHODS OF ANALYSIS OF THE ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS. Compiled by Committee on Editing Methods of Analysis. Washington: Association of Official Agricultural Chemists, 1931. 593 pp. Price, $5.00.

DIABETES: ITS CONTROL BY THE INDIVIDUAL AND THE STATE. By Elliott P. Joslin. Cambridge: Harvard University Press, 1931. 70 pp. Price, $1.00.

PROCEEDINGS OF THE NATIONAL CONFERENCE OF SOCIAL WORK. Chicago: University of Chicago Press, 1931. 702 pp. Price, $3.00.

THE VITAMINS. By Ethel BROWNING. Baltimore: Williams & Wilkins, 1931. 575 pp. Price, $10.00.

RURAL SCHOOL NURSING. AN OUTLINE FOR RED CROSS PUBLIC HEALTH NURSES. American National Red Cross, 1931. 151 pp. Price, $.50.

MANCHURIAN PLAGUE PREVENTION. Service Reports, 1929–1930. Vol. VII of the Series. Harbin Anti-Plague Institute, 1931. 232 pp.

MRS. DOSE, THE DOCTOR'S WIFE. By Joyce Dennys. New York: Appleton, 1931. 154 pp. Price, $1.50.

WHY WE DO IT. By Arthur R. Daviau. Boston: Meador Pub. Co., 1932. 231 pp. Price, $2.00.

LIFE OF SIR CLIFFORD ALLBUTT. By Sir Humphry Davy Rolleston. New York: Macmillan, 1929. 314 pp. Price, $6.00.

COURTS AND DOCTORS. By Lloyd Paul Stryker. New York: Macmillan, 1932. 236 pp. Price, $2.00.

A GRAPHIC STORY OF MILK. The Douthitt Corp., Chicago, Ill. 24 pp. of charts.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

New York's Dipped Milk—The findings of a commission of distinguished members answered certain questions of the health commissioner as follows: Loose milk is a potential health hazard which can be removed only by the prohibition of its sale (except under certain restrictions); but owing to economic conditions, it is recommended that the prohibition become effective in 1933. The full report will be published shortly and will be available.

ANON. Banning of Dipped Milk Recommended. Weekly Bull. (N. Y. C. Dept. of Health), 20, 46: 341 (Nov. 21), 1931.

Prenatal Hygiene Principles—This British lecture on the remedies for the causes of maternal mortality indicates that there is little difference of opinion on the subject here and abroad. The exception is the British tendency for frank discussion of the importance of eugenics, birth control, and sterilization, subjects usually taboo in this enlightened land.

BROWNE, T. J. The Health of the Woman Citizen as Potential and Actual Mother. J. State Med. 39, 12: 688 (Dec.), 1931.

Milk-Borne Infections—After listing at length all the infections that may be transmitted through milk, the author of this British contribution agrees with his "discussers" that pasteurization is likely to prove merely a veil to blind the public to the necessity for the elimination of tubercle infection from the milk supply.

BURROW, H. Bacterial Contamination of Milk and Its Significance. J. Roy. San. Inst. 52, 6: 234 (Dec.), 1931.

Preventing Heat Cramps—Loss of salt in sweat is the cause of heat cramps, which may be relieved by the prophylactic administration of sodium chloride tablets.

GLOVER, D. M. Heat Cramps in Industry: Their Treatment and Prevention by Means of Sodium Chloride. J. Indust. Hyg. 13, 10: 347 (Dec.), 1931.

Infra-Red Radiation—"Many people feel stuffy and uncomfortable in a closed room warmed by a plenum system, or by dark or dull red sources of heat," says the author, introducing some observation which he concludes will alter the theory and practice of ventilation and heating.

HILL, L. The Influence of Infra-Red Radiation in Relation to Ventilation and Heating. J. State Med. 39, 12: 684 (Dec.), 1931.

Typhoid Fever Via Milk—"Eighty cases of typhoid fever occurring in Salisbury, Maryland, in July, 1930, were traceable to one milk supply. On the farm producing this milk a typhoid carrier was found. He had probably assisted in handling the milk on July 4."

HURDLE, S. H. A Milk-Borne Epidemic of Typhoid Fever in Salisbury, Maryland. J. Prev. Med. 5, 6: 465 (Nov.), 1931.

Thyroid Prophylaxis in Two Cities—Here is an interesting comparison. In Detroit, the state and city health departments, the school board and medical profession united upon a practical program to provide iodized table salt throughout the city (at no increased cost to the consumer). As a result the incidence of goiter was greatly reduced. In Cleveland, thanks to the exploitation of the possible danger that iodine might produce hyperthyroidism, the authorities abandoned a similar goiter prevention project and the medical profession was unable to agree on a plan. As a result, Cleveland continues to enjoy its incidence of thyroid enlargement.

KIMBALL, O. P. The Prevention of Goiter in Detroit and Cleveland. J. A. M. A. 97, 27: 1877 (Dec. 19), 1931.

Adult Poliomyelitis—In the epidemic studied, both sequelae and mortality rate were worse in adult cases than among children and serum therapy seemed far less encouraging.

LIMPER, M. A. *et al.* Poliomyelitis in Adults: Report of 60 Cases. J. Prev. Med. 5, 6: 475 (Nov.), 1931.

Bacterial Dissociation—Another contribution to our knowledge of bacterial dissociation. In this report the variations in the cultural characteristics of a coli-like organism are recorded. This paper may be read with profit by sanitarians who studied a "cut and dried" bacteriology.

NUNGESTER, W. J. and ANDERSON, S. A. Variation of a Bacillus Coli-Like Organism. J. Infect. Dis. 49, 6: 456 (Dec.), 1931.

Septic Sore Throat Studies—A general statement of the incidence, manifestations, and diagnosis of septic sore throat with a discussion of the bacteriology of *Streptococcus epidemicus*.

PILOT, I. and DAVIS, D. J. Sporadic Septic Sore Throat. J. A. M. A. 97, 23: 1691 (Dec. 5), 1931.

Breast Feeding vs. the Bottle—Don't miss this collection of opinions. Dr. R. M. Smith says, "Breast feeding is particularly important during first six weeks of life; it is desirable during first three months. . . ." Dr. W. P. Lucas says, "Except for conferring certain immunity, all other requirements are more easily met by a formula. . . ." Dr. C. G. Grulee, "My own feeling is that the pendulum is swinging back to breast feeding. . . ." Dr. W. McK. Marriott, like his predecessors, admits the desirability of breast feeding; he does not argue against it, but is against "unintelligent fetishism." There is more to come in the next issue.

SMITH, R. M. *et al.* Are Infant Feeding Methods Changing? Pub. Health Nurs. 23, 12: 581 (Dec.), 1931.

Mass Protection Against Measles—A British discussion of the advisability of exposing infants to measles to be followed by a partially protective dose of convalescent serum. The limitations of alternate schemes are considered.

STOCKS, P. Some Observations on the Control of Measles Epidemics. Brit. M. J. 3699: 977 (Nov. 28), 1931.

Mass Prophylaxis Against Colds—Autogenous vaccine made from throat cultures was offered to a group of employees. Among the inoculated, 35 per cent lost time, whereas over 50 per cent of the untreated were absent because of catarrhal conditions.

STOWELL, T. E. A. Some Factors in the Reduction of Absenteeism Due to Catarrhal Conditions. Brit. M. J. 3699: 985 (Nov. 28), 1931.

Cancer Research—This report of very limited success in the treatment of epitheliomas with pituitrin plus theelin will probably become public property, for it has been mentioned in a news magazine. Health officials should be cognizant of this paper.

SUSMAN, W. The Rôle of the Pituitary in the Etiology of Cancer. Brit. M. J. 3695: 794 (Oct. 31), 1931.

NEWS FROM THE FIELD

FRENCH EQUATORIAL AFRICA

INFANT health centers have been established in French Equatorial Africa, in some districts of which one-half of the infants die in their first year. This high mortality rate is attributed mainly to the ignorance of the native mothers. At the infant health centers, the public health physicians in the service of the French Government examine the children and teach the mothers the rules of hygiene. In order to assure attendance, gifts are distributed to the mothers, such as clothing for the children, soap, salt, and other things; larger gifts are given to mothers whose children show evidence of good care. Contests with money prizes are also being held. As a result of this work, in 2 years the infant mortality has decreased 8 times in one place and 20 times in another.

In some places groups of European women have organized prenatal and child health work among the natives. They maintain health centers, employ physicians and native visiting nurses, and distribute aid to mothers of little children.

In some of the important centers of population, training courses are provided for native midwives who are later stationed in the villages. Maternity hospitals have also been built in a number of places with funds obtained partly from the Government and partly from private sources.

Similar work is being done in French West Africa where, in addition, health centers have been established for school children and steps have been taken for the improvement of the vital statistics pertaining to the native children.—Office International d'Hygiéne Publique, *Bulletin Mensuel*, Paris, Oct., 1931, pp. 1829, 1834.

PUBLIC HEALTH CODE OF CHILE

THE recently published public health code of Chile has a section on the health of mothers and children. Among other things, it orders the National Department of Health to establish health centers for expectant mothers and children. The department will also supervise the work of all institutions or agencies concerned with the welfare of the mother and child, whether public or private, whenever they are subsidized by the State. The health work of the State is to apply to children from birth until the end of the school attendance period and to mothers from the beginning of pregnancy until the end of the 6th month after the child's birth. Besides health work, the State is also to give other forms of aid to mothers and children, the details of which are to be prescribed in later regulations. Dependent mothers and children in the above mentioned periods of their lives are to be given free maintenance in public institutions.

No mother is allowed to nurse another child before her own is 5 months old, unless a physician certifies that she is able to nurse two children at the same time. This fact must be reported to the public health authorities, who are required to investigate the case.

The preventive health work for school children will be in charge of the National Department of Health; private schools must maintain medical service for their pupils in accordance with the rules of the department.

Dental clinics for mothers and children are to be established in the larger cities.—*Diario Oficial de la Républica de Chile*, July 6, 1931.

MATERNAL AND CHILD HEALTH CENTERS IN FRANCE

A STRONG movement is now going on in France for an increase in the number of maternal and child health centers as a means of checking infant mortality. Several of the departments of France have established such centers, but it is considered important to extend the system to the entire country, both urban and rural districts. For this purpose, the Minister of Public Health recently issued a circular to the prefects urging them to establish such centers throughout their respective departments and prescribing in detail their organization and functions. Several bills for that purpose are pending in the French Parliament, but the Minister considers this matter too urgent to wait until the bills are passed.—*La Revue Philanthropique*, Paris, Oct. 15, 1931, p. 797.

ADDITION TO NEW YORK ACADEMY OF MEDICINE PLANNED

ON January 10, at the annual meeting, announcement was made by Dr. Linsly R. Williams, director of the academy, that construction of a $400,000 addition to the New York Academy of Medicine would begin in the near future.

Prior to the meeting a testimonial dinner attended by more than 200 fellows of the Academy was given in honor of Dr. Williams. In his address the director reviewed the activities of the academy during the last 8 years and outlined some of its plans for the future.

RESOLVED!

ON October 29, 1931, about 3 years after the organization of the Suffolk County Department of Health, the following resolution was unanimously adopted by the Suffolk County Medical Society (N. Y.) at the largest annual meeting in its history:

RESOLVED, that the Suffolk County Medical Society hereby reaffirms its opinion first expressed in 1926 that public health administration can only be efficiently done by county organization (to replace township part-time organization); that after 3 years of experience the local profession more strongly than ever believes that the efficiency of public health practice is greatly improved by county organization; and that the physicians of the county have found that a county health department is an asset in their professional work and an asset to their economic welfare.

TEXAS WATER WORKS SHORT SCHOOL

THE Fourteenth Texas Water Works Short School was held at Mineral Wells, Tex., January 18–21. The program covered water supply, and sewage practices in general.

PERSONALS

DR. HAVEN EMERSON, F. A. P. H. A., was recently appointed by the President of the Merchant's Association of New York to succeed the late Professor Olin H. Landreth as Chairman of the Association's Committee on Sanitation, Public Health and Water Supply.

DR. JOHN W. MORR, of Albion, Ind., has been appointed Health Officer of Noble County, Ind., to succeed the late Dr. John H. Ravenscroft.

DR. THOMAS E. CARNEAL, of Winamac, Ind., has been appointed to fill the unexpired term of Dr. George W. Washburn, of Star City, Ind., who has resigned as Health Officer of Pulaski County, Ind.

DR. ALVIN H. ROCKWELL, member A. P. H. A., for 23 years Health Officer and Director of Health and Welfare of Kalamazoo, Mich., has resigned as of January 1.

DR. ALFRED F. HESS, of New York, member A. P. H. A., was recently elected to honorary membership in the German Pediatric Society.

DR. I. F. THOMPSON, F. A. P. H. A., of Syracuse, N. Y., has been appointed to succeed Dr. W. W. Bauer as the Health Officer of Racine, Wis.

DR. T. H. JOHNSTON, member A. P. H. A., of Athens, Ga., has resigned as secretary-treasurer of the Georgia State Public Health Association and Victor H. Bassett, M.D., has again been appointed to serve as secretary.

DR. C. W. DECKER has been appointed to succeed Dr. George Parrish as City Health Officer of Los Angeles, Calif.

CONFERENCES

April 4–8, American College of Physicians, San Francisco, Calif.

April 11–15, American Nurses Association, San Antonio, Tex.

April 11–15, National Organization of Public Health Nursing, San Antonio, Tex.

April 11–15, National League of Nursing Education, San Antonio, Tex.

April 19–23, 37th Annual Convention of the American Physical Education Association, Philadelphia, Pa.

May 10–15, Annual Congress of The Royal Institute of Public Health, Belfast, Ireland.

June 2–4, Third Annual Meeting, Western Branch, American Public Health Association, Denver, Colo.

June 6–9, National Tuberculosis Association, Colorado Springs, Colo.

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